THE CULTIVATOR:

A MONTHLY PUBLICATION, DEVOTED TO AGRICULTURE.

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THE CULTIVATOR.

TO IMPROVE THE SOIL AND THE MIND.

TO SUBSCRIBERS.

☞ Conformable to our conditions—the Cultivator will be discontinued, after this number, to all who do not renew their subscriptions, or have not already paid in advance for the fifth volume—except in Albany and its vicinity. A list of agents to receive and transmit subscriptions is printed with the index, and accompanies this sheet. ☞ We beg that no bills of a less denomination than one dollar may be sent us, and that remittances may consist as far as practicable, of bills of New-York banks, or of those of adjoining states. ☞ We promise, that our coming volume shall not be less interesting, or useful, than the volumes which have preceded it.

CULTIVATOR PREMIUMS.

In pursuance of the proposition we made in the first number of this volume, the following premiums are awarded, being all that have been competed for in the mode prescribed. The ten dollar premiums, it will be recollected, are payable in plate, and the five dollar premiums in bound volumes of the Cultivator and monthly Genesee Farmer. Those to whom the first are awarded, will please to intimate the articles of plate they prefer, as table or tea spoons, cups, &c. in order that the proper inscriptions may be made upon them.

To Henry Hopkins, of Laurens, Otsego, for the most profitable acre of Indian corn, *ten dollars.*

To W. Miller, of Georgetown ⋈ Roads, Md. for the second most profitable acre of Indian corn, *five dollars.*

To Willard Cotton, of Madison county, for the most profitable acre of ruta baga, *ten dollars.*

To J. J. Bullock, of Albany county, for the second most profitable acre of ruta baga, *five dollars.*

To J. Smeallie, of Schenectady county, for the best directions for making English imitation cheese, *ten dollars.*

To the same, for the best directions for making butter, *ten dollars.*

To Aaron Petrie, of Herkimer county, for the best directions for making American cheese, *ten dollars.*

A premium for the best plan of a barn and out-buildings will be announced hereafter—having three plans on hand yet unpublished, illustrated by several drawings, and which we shall publish as soon as the cuts are prepared.

We design to give notice in our next, of the premiums which we intend to offer for the coming year.

CIRCULATION OF THE CULTIVATOR.

The following is a statement of the number of copies of the present volume of the Cultivator, circulated in the several states and territories, viz:

New-York,	7,428	Delaware,	196
Virginia,	1,647	District of Columbia,	105
Massachusetts,	1,032	Wisconsin,	104
Maryland,	1,114	Georgia,	99
Pennsylvania,	969	Missouri,	50
Vermont,	939	Maine,	34
New-Jersey,	796	South Carolina,	30
Ohio,	780	Mississippi,	8
Indiana,	578	Texas,	1
Kentucky,	436	Alabama,	40
Michigan,	444	Rhode-Island,	39
Illinois,	366	Arkansas,	32
New-Hampshire,	284	Louisiana,	17
North Carolina,	219	Florida,	1
The Canadas,	204	Nova Scotia,	22
Tennesse,	170		

GREAT CROPS.

We invite the reader's attention to the statements we record in this number, of the ruta baga crops of Mr. Bullock and Mr. Cotton, and of the Indian corn crop of Mr. Hopkins. Mr. Cotton's crop exceeded 1,100 bushels, and Mr. Bullock's came up to about 1,000 bushels, the acre; and Mr. Hopkins' corn gave a nett profit of $155. Such results are highly creditable to the gentlemen who produced them, show the susceptibility of our soil for great improvement, and cannot fail to stimulate our farmers to profit by their modes of management

The fact will bear repeating, that 1,000 bushels of ruta baga will go more than six times as far in keeping farm stock as two tons of hay, the supposed product of an acre. The ruta baga, at an allowance of one and a half bushels, or ninety pounds per day, will give 666⅔ rations; while the hay, at twenty pounds a day, will give but 100 rations; and the turnips will furnish the best and most manure, and will ameliorate and improve the soil. Surely these examples are worthy of imitation.

In regard to the culture of the corn, we wish it to be remarked, as having a sensible bearing on the profit of the crop—1. That the soil was a warm sandy loam, the proper one for this grain; 2. That it was planted on a sward, ploughed in autumn, *but not cross-ploughed;* 3. that the crop had an abundance of *unfermented* manure; 4. That it was neither ploughed nor earthed in the culture; 5. That it was planted early; 6. That the crop was harvested by cutting it up at the ground; and 7. That it was well dressed with ashes. In most of these particulars Mr. Hopkins went counter to the old practice, and was highly successful in his experiment.

BREWERS' GRAINS,

Are extensively used in the neighborhood of cities and towns, by milkmen and others, as a cheap and beneficial food for milch cows, in winter. The scarcity of pasture in such places renders it desirable to store these grains up also for summer use, inasmuch as they are not to be had at the breweries during summer. This is done, on an extensive scale, about London and Edinburgh; and as the mode there adopted might be easily practised here, we shall briefly state what it is. The grains are laid up in pits, lined with brick-work set in cement, from ten to twenty feet deep, and of any convenient size. They are firmly trodden down, and covered with a layer of moist earth, eight or nine inches thick, to keep out the rain and frost in winter, and heat in summer. The slow and slight degree of fermentation which goes on, tends, say the dairymen, to the greater development of the saccharine and nutritive principle. Some have been kept two, and in one instance nine years, and have been perfectly good at the expiration of that period. A cow consumes about a bushel of these grains daily, which constitutes her principal food, the cost of which, in Great Britain, is four or five pence, and here about half that sum, or four or five cents. The pits should be kept closed till the grains are wanted to be used. In this way, hundreds, if not thousands of milch cows, are principally subsisted about London and Edinburgh during the summer.

Mr. Defreest, of Greenbush, put some grains into pits, made of plank, last fall, and covered them with straw. He opened one of them a few days ago, and found the grains in an excellent improved condition, except about three inches on the surface, which were injured by the access of air through the straw covering. Mr. D. is pleased with the result, but intends hereafter to cover his pits with earth.

THE GRAIN-WORM,

It is believed, has diminished the product of the wheat crop, in the districts which it has ravaged for two or three years, at least THREE-FOURTHS—that is to say, it has prevented the sowing of the winter varieties to a very great extent, and it has destroyed, at a fair computation, one-half of the crop which has been sown. Most of the wheat now grown in these districts is of the spring varieties, and these, unless sown late, fare very little better than the winter kinds. When, four years ago the New-York State Agricultural Society memorialized the legislature upon this subject, urging the propriety of offering large bounties for the discovery of a preventive of the evil, the Conductor of this journal was told by the chairman of the agricultural committee, who was from the west, that the subject was not worthy of a report, and consequently no report was made We are only warranted in saying, that had a liberal reward been offered at that time, and had it led to the desired discovery, a million of dollars would have been saved to the farmers of the infected districts, and many millions more, in the coming years, to the state at large. And had no discovery been made no harm would have been done—no public money expended.

The grain-worm has now extended west to Ontario, and in all probability will in a few years pervade the entire wheat country of the west. Admitting that its effects upon the products of the wheat crop there should correspond with what they have been here, how immense must be its injury to our trade, our revenue, and to the cultivators of the soil. The wheat and flour brought upon the Erie canal, the last year, to the Hudson, was nearly equivalent to a million of barrels of the latter, while an equal quantity, probably, was retained for home consumption. A diminution of one-half of this product would leave very little to pay toll upon the canals, or to go to liquidate our foreign debt, as it has heretofore done. Deduct five hundred thousand barrels from the surplus, and this, at the present price, would amount to *five millions of dollars.*

It is true, we cannot drive the wheat-worm from our state, by legislation, any more than we can one dollar bills; yet by calling the attention of men of science, and of practical farmers, to the subject, by the hope of a liberal reward, an efficient preventive may be discovered, or one that will materially mitigate the evil. Man is made lord over animated creation; and he is presumed to be endowed with faculties, if suitably improved, that will enable him to exercise that supremacy efficiently. We see the ignorant and the indolent often victims to calamities, which the wise and the active foresee and avert. We have mastered many of the insect tribes that have preyed upon our crops, our cattle and our bodies; and it is fair, reasoning from analogy, to suppose, that we can master the grain-worm,—if proper and adequate encouragement is offered, by the state, for the discovery of a mode of doing it.

COMMON SCHOOL LIBRARIES.

Governor Marcy, in his late message, recommends a more efficient mode of establishing common school libraries, viz. to devote a small sum to each district which will raise by taxation an equal amount for the establishment of a district library. We like the proposition for establishing district libraries; but we do not like the proposed mode of carrying it out. If these libraries are useful, which no sensible man, we believe, doubts, they ought to be not only general, but select. To ensure the first, it is only necessary to provide by law, that a certain per cent of the annual gratuity to each district shall be paid in books, instead of cash. By this provision fifty per cent may be saved in the purchase of the books, if, in the second place, provision is made to procure books of established usefulness, adapted to our institutions, and the ordinary wants and business of life. Agriculture and the mechanic arts constitute the employment of most of our population. Were some of the elementary works which instruct in these primary branches of labor, as well as those which inculcate the social and moral duties, made to constitute a part of *every* district library, the public could not be sufferers, nor could any individual with any propriety complain. We repeat, that by the state becoming the purchaser of all the books required for the *ten thousand three hundred and forty districts*, fifty per cent might be saved in the cost, a uniform and useful system would be established; and selections might be made eminently calculated to promote the great objects of society.

SCIENCE OF AGRICULTURE.

The great bar to agricultural improvement, is the degrading idea, which too many entertain, that every thing denominated science, is either useless in husbandry, or beyond the reach of the farmer; whereas the truth is, much, very much that is useful, is attainable by those advanced in life, and almost any thing by the young, who will adopt the proper means to obtain it. What is science? Johnson defines it—"Knowledge; certainty grounded on demonstration; art attained by precept, or built on principles." The adventurous mariner will tell you, that it is science which enables him to traverse every clime, and every sea, with facility and comparative security. Science has contributed essentially to improve every art and branch of industry which administers to the wants of man. It makes us acquainted with the nature of vegetables, of animals, minerals, mixed bodies; of the atmosphere, of water, of heat and light, as connected with agriculture; of agricultural implements and other mechanical agents, and of agricultural operations and processes. Established practices may be imitated by the merest dolt; but unless he is instructed in the reasons upon which these practices are founded, he can seldom change or improve them.

Intellect is the gift of the Creator; talent is the fruit of culture. The certain way of obtaining knowledge in science, is to be impressed with the necessity of possessing it, in order to prosecute one's business to better advantage. "All may not acquire by the same degree of labor or study, the same degree of eminence; but any man by labor may attain a knowledge of most all that is already known in his particular business." Great men spring from no particular class; they rise from the humble as well as from the higher ranks of life. Franklin was a printer, Washington a farmer, Sherman a shoemaker, the elder Adams a schoolmaster, Rittenhouse a ploughman; Ferguson a shepherd, Herschell a musician—and these all shone conspicuous as philosophers or statesmen. All young men who wish to become respectable, or to excell in agriculture, should be impressed with the necessity of obtaining knowledge in the science of agriculture, i. e. of knowing *how* things are *best* done, and *why*, being so done, they are the best done;—should resolve to obtain this knowledge;—and these two things being premised, there is little doubt of success, at least to a respectable and highly gratifying extent: For "knowledge, like wealth and power, begets the love of itself, and rapidly increases the thirst of accumulation." Science is not the Calypso, but the Mentor of agriculture—the stimulant to prudence and industry, rather than a lure to indolence and sloth.

A timely hint in regard to Sheep.—At this season of the year many sheep die,—not for want of food—but from causes unknown. Sheep, in their natural state, pick up green or succulent food, and have access to the ground, at all times of the year. In our artificial mode of managing them, we deny them the privilege which nature intended: we confine and keep them upon dry food, one-third of the year—and they become diseased,—and die—for the want, we apprehend, of green and succulent food. Those farmers who can feed roots at this season, should do so; but those who cannot, or even if they can, may prevent disease, by following Chancellor Livingston's practice (Essay on Sheep, p. 83,) of giving them pine or hemlock boughs; or Mr. Vanderlyn's, of giving them access to clay, both of which correct the acidity of the stomach, and afford relief. During deep snows, says Mr. L. bring the branches of cedar, pine, hemlock, or other bushes, that rise above the snow, to your fold yard, or beat a path that your sheep may go to them. If not on the farm, he directs to smear tar on boards, and sprinkle them lightly with salt, and lay them so as the sheep may get them; by eating it their bodies will be kept open, and themselves in heart.

MISTAKEN NOTIONS OF AGRICULURAL EMPLOYMENT.

A worthy young gentleman remarked to us the other day, that he had often regretted the Cultivator had not been established four years earlier than it was—for then, said he, "I should have learned, in time, what that has taught me, but which I did not know before, viz. *that farming may not only be made profitable, but respectable.*" The truth is, the young gentleman had returned, from studying a learned profession, to the management of his paternal estate, under an impression, but too common, that the cultivation of the soil was rather a menial and unprofitable employment, beneath the care of a *gentleman*, and which neither required talent, nor conferred honor. This error in opinion led to error in action—he went into speculation. The lessons of the Cultivator, he assured us, had changed his opinion, in regard to rural matters, and in time too, we are happy to add, to save him, not from loss, but from ruin.

This underrating the business of farming, has led to much individual distress, and contributed not a little to the late pecuniary embarrassments of the country. The business of agriculture has *not* been properly appreciated, either by the people or the government, and we do not know of any more in fault than the farmers themselves. There is no business that is so indispensable to human happiness—none that gives a greater scope to useful study—none that contributes more to the development of the noblest faculties of our nature—or that tends more surely to secure the substantial enjoyments of life, to individuals and to the state—than the cultivation of the soil. And yet, such is the strange fatuity of our nature, that we do nothing to encourage, to enlighten, or to elevate it, above the lowest employments in life—any further than we are impelled by our immediate wants.

A correspondent, whose letter is post marked Royalton, Vt. and who we suspect is some young farmer that has been jilted by his sweetheart, complains to us bitterly, that the girls prefer the butterflies of the day, to the industrious bees, who toil upon the farm; and that this their partiality for exterior show, drives many a young man to *fashionable* pursuits in order to secure their smiles—and he imploringly solicits our aid to lessen the evil. We may *help*, but the young farmers can alone *cure* the evil. Let them store their minds with useful knowledge—polish their manners, by an ingenuous and civil deportment—economize the fruits of their labor—and if all these will not win the smiles of the favorite fair ones—why then—let them alone; and search for others who *will* appreciate merit—and who can make your butter and mend your stockings.

But after all, there is much truth in the intimation of our correspondent. Thousands of young men do annually forsake the plough, and the honest profession of their fathers, if not to win the fair, at least from an opinion, too often confirmed by mistaken parents, that agriculture is not the road to wealth, to honor, nor to happiness. And such will continue to be the case, until our agriculturists become qualified to assume that rank in society to which the importance of their calling, and their numbers, entitle them, and which intelligence and self-respect can alone give them. Knowledge and virtue impart dignity to the profession, as well as to the man. Therefore get wisdom—get knowledge.

PEAT EARTH AND PEAT ASHES.

The character and name of this earth varies in different countries, as well as the speculations of writers as to its origin. The mosses of Scotland, the bogs of Ireland, and the fens of England, are but different names for flat wet grounds, of greater or less extent, corresponding in general character with what we here denominate swamps and marshes. Some

writers consider those of Europe antideluvian, and composed of primitive earth. Others consider them vegetable matters, which grow and increase till they swallow up and destroy all other soils. Others, again, that they are composed of ligneous and aquatic plants, brought into action by the destruction of extensive forests, which abounded there in former times. However these speculations may apply to Great Britain and Ireland, it is pretty evident that what we denominate peaty and swampy earths, have generally originated from the accumulation of vegetable matters brought from the surrounding forests, during the lapse of ages, through the agency of water, and of lignjous and aquatic plants, which have successively grown upon the ground, perished, and undergone a greater or less decomposition. Many of our swamps have undoubtedly once been the sites of lakes or ponds, which, in the process of time, have become filled with alluvial matters to the level of their outlet, and have afterwards become clothed with vegetation—first with marsh herbage, and afterwards, in many cases, with forest timber.

These soils have, however, been divided into classes, differing not only in the decomposition which they have undergone, but in the foreign matters which they contain, and requiring somewhat a different mode of treatment. Thus they are denominated fibrous, compact, bituminous, calcareous, i. e. abounding in lime or gypsum, sandy or clayey, &c.

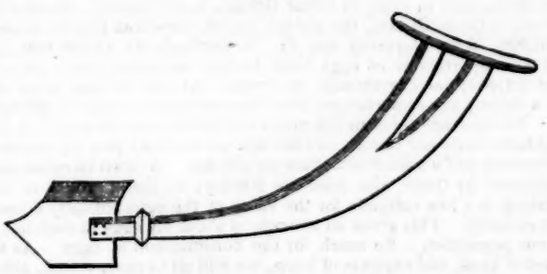
Having in our last described the modes of profitably applying peat earth to increase the fertility of uplands, we now proceed to give directions for rendering peaty grounds productive and profitable, by

PARING AND BURNING.

Thorough draining is the first and an indispensable requisite. An excess of water has in a great measure caused the accumulation of vegetable matter, by retarding decomposition; and the soil cannot be rendered fertile in wholesome products till this cause of infertility is removed. This operation will alone induce fertility where there is much clay and sand blended in the soil, or where the peaty matter is so superficial as to be mixed with the subsoil by the plough. In other cases, a top-dressing of caustic lime, particularly where the peat is feruginous, or abounding in iron, harrowed or ploughed in with a light furrow, will bring on fermentation and induce great fertility. But in most cases the surface of swamps and marshes consists of a coarse, tough net work of the roots of bogs and other marsh plants, which it is difficult to manage or subdue. In this case the most approved practice is, after the bogs have been cut up and removed, to plough or pare the surface, and when sufficiently dry to burn it, and to spread the ashes over the ground. At this juncture either the lime or manure may be applied with great benefit, in aid of the peat ashes, to bring on fermentation, and induce fertility. Where the plough can be used, it is to be preferred; and the furrows should be lapped, so as to give the greatest effect to the drying influence of the sun and winds. Where the ground is not sufficiently firm to bear a team, resort may be had to the common European mode of paring the surface, with the breast plough, which is effected by manual power. Where the plough is employed, it is sometimes passed also crosswise, to cut the sods into squares. And it is proper, whatever instrument be employed, to go to the depth of the sod, or roots. The ploughing or paring ought to be done before August, that the sods may be sufficiently dry to burn in that month or early in September.

In performing the operation of paring by manual power, the common bog hoe, or paring-mattock, with a broad edge, is used for bogs, bushes, or tough sod, while the breast plough (fig. 48,) is the principal implem nt

Fig. 48.



otherwise employed, which is generally pushed by the breast of man. The blade of this implement is described in British Husbandry as "about thirteen inches long, terminating in a broad angular point. On the left hand side of the tool, there is a small edge, turned up like a coulter, which cuts the furrow in straight lines. The parts which form the blade, or share and coulter, are both of one thin plate, which is required to be of good metal, as the instrument must be kept extremely sharp. The flat, or sharp part, is somewhat more than a foot broad at its insertion with the handle; the coulter is turned so that it stands right up when the share is flat upon the ground, and cuts the edge of the turf as the share does the bottom. The shaft is of wood, made with a considerable curve upwards, and it is about seven feet in length; at the upper end of which is placed a hilt about two feet long, not thicker than a man can conveniently grasp with either hand, and by which he guides it. It is thus pushed forward, cutting the surface of the land as thinly as it is possible to do it, taking care, however, that no herbage is left uncut upon the pared ground, and when in pieces of about a couple of feet in length, it is turned over on the right side by a wrench of the spade, given by the workman; by which means the turf lies hollow, and the ground shows that the whole face of the land has been cut clean. The sods, when turned over, should be laid with the best possible exposure to the sun and air, in order that they may dry, which requires two, and sometimes three weeks, according to the state of the weather and the nature of the turf."

The great points to be aimed at in burning are, to have the combustion progress slowly, to exclude the air wholly from the fire, and completely to burn all the sods. With this view the piles are made of different sizes, from four to twenty-four cart-loads each; the centre is made to contain brush, or other readily combustile material, and when the fire is well established here, all the apertures are closed, and fresh sods are added as circumstances warrant, till the whole is expended. In most of our swamps there are large stumps, which, if dry, form excellent centres for a turf heap; and piles of roots or brush may be used advantageously for the purpose; but in both cases great care will be required to keep the air from the fire, by piling on fresh sods, lest the fire get vent, and thus impair the value of the ashes.

Curwin thus describes the operation of paring and burning in Ireland: "Round a space from six to ten feet in diameter, a trench of a foot deep, and of the same width, is dug, the soil of which is laid on the adjoining surface of equal breadth. Beyond this another circle of sods is taken out, and laid to dry in the same manner; and thus the work proceeds, till the quantity dug, with that which is left undisturbed for a floor, is as much as can be properly burnt on the space in the centre. As soon as the sods are sufficiently dry, they are gathered together, the heap is set on fire, and additions are made of wet and dry sods from time to time, so as to keep a regular, moderate, and smothered fire, in proportion to the attention paid to which particulars, the husbandman is rewarded by the quantity of potatoes he will procure."

The quantity and quality of the ashes vary, according to the quality of the peat earth and the care in burning. The quantity has amounted to 2,000 to 2,400 bushels on an acre. On analysis they are found to contain considerable carbonate of lime and gypsum. The expense in Great Britain varies from 1*l.* to 3*l.* per acre, say equivalent to $4.50 to $13 the acre.

The ultimate object in reclaiming peaty or swampy soils, should be, after they have been suitably prepared by a few tillage crops, to improve them as grass lands. The tillage crops employed to bring them into good condition, are oats, potatoes, turnips, rye, carrots, clover, &c. and the seeds proper for meadow and pasture, timothy, herds-grass, (red-top,) clover, &c. Several indigenous grasses, particularly of the agrostis family, will come in natually. These grounds should be preserved in grass so long as they yield a fair return. When they cease to do this, they should be again subjected to the plough for two or three years, and then stocked anew. We have the authority of Sir John Sinclair, for saying, that by suffering the second crop of grass to rot upon the ground, that is, neither to cut nor feed it off, an immense product of hay is insured for the succeeding year, and that swamp land may thus be made a perpetual hay meadow; and that this important fact has been corroborated by experiments which have been made in Flanders, where the same effect has been produced, by leaving the second crop on the ground every second or third year; the grass produced the succeding year being of extraordinary length. This result would no doubt be facilitated with us by the addition of gypsum, in the spring, upon the old fog.

We close this article with the following, given in British Husbandry, as a summary of the best practice:

"1stly. To drain the land perfectly, and to lay it dry, before commencing the operation.

"2dly. To regulate the depth of the paring by the nature of the turf, and the thickness of the mat of coarse sward.

"3dly. To burn the turf slowly, but completely, so as to reduce the whole to ashes; yet carefully to guard against allowing the fire to take such hold of the ground under the heaps, as to harden it into pits.

"4thly. To spread the ashes upon a shallow ploughing, and as fresh as possible—even hot; as they operate more powerfully in a caustic state than afterwards.

"5thly. To mix lime in a moderate proportion with the ashes.

"6thly. To sow the seeds as promptly as may be convenient after the ashes have been spread and ploughed in.

"7thly. To commence the cultivation—if the time of the year and other circumstances will permit,—with turnips or cole—but if oats or barley be taken as a first crop, to follow it with two successive green crops; and never to sow wheat until the land be brought into a fine tilth, and perfectly clean.

"8thly. To apply the whole of the manure produced by the crops to the ground, and to manage it, generally, in the usual course of regularly cultivated arable land."

Although the above rules are intended to apply particularly to paring and burning upon uplands, they are nevertheless generally applicable to peaty soils.

HEDGES—OR LIVE FENCES.

3. PREPARATION OF THE GROUND AND PLANTING.

The ground on which it is desired to grow a hedge must be made dry, except when alders and birch are intended for hedge plants. In Great Britain, whose climate is humid and cool, it is the general practice to plant hawthorn hedges in the face of a ditch, the earth from which is thrown upon one side, and forms a bank. The plants are laid in a horizontal posture a little above the natural surface. In our comparatively warm and dry climate this mode of planting does not seem to prosper so well. The hedge is too sensitive to drought, and the plants sometimes lose their foliage, or cease to grow, long before the arrival of autumn. They are besides more liable to injury from the severe cold of winter, than when growing on a horizontal surface. We deem it the best mode to manure, and till the ground intended as the site of a hedge, with potatoes, or other root crops, the year before it is planted, in order to render it rich, mellow and clean, that the plants may obtain a vigorous start in the outset. The hedge may be planted in either autumn or spring. The way to proceed in planting is, to draw a cord on the line designed to be planted, and to open a trench with the spade, deep enough and broad enough freely to admit the roots of the plants, preserving a perpendicular side next to the cord. The plants being sorted into parcels of equal size, one person takes them, and beginning at one end, sets them at proper intervals into the trench, the heel of the plant to the perpendicular side, and another throws in earth to fix them in their position. Having gone through in this way, the plants are set up straight, the earth trod firm around them, and the trench filled up. The distance between the plants will depend upon their size and habits. If a double hedge is required, a second trench is made parallel with the first, at ten or twelve inches distance, or the first trench is made of this width, with two perpendicular sides, against which the two rows are planted, the plants in one being opposite the intervals in the other, otherwise in quincunx form. Weeds must be kept down by the hoe.

4. MANAGEMENT OF THE HEDGE.

The first requisite to success, is a determination to persevere, in despite of the labor and care which are to be put in requisition. The hedge must be well taken care of for at least the three coming years, or all the preparatory labor will be lost. If it is not kept clean, the cattle prevented from injuring it, and not duly clipped, it were better not begun. Besides these labors, it is necessary, in order to have an efficient fence, to fill all vacancies occasioned by plants not growing the first year, or by such as are stunted in their growth, with new and vigorous ones, of which a stock should be kept in reserve for this purpose. The labor of doing all this is not great; but it is the novelty of the employment, and the want of a due consideration of its importance, that is apt to induce us to procrastinate and neglect it. The hedge should be twice cleaned in a season with the hoe, and clipped once in a season, as soon as it throws out laterals, or limbs, of any size.

There are various modes of training a hedge, according to the fancy of the proprietor, or the nature of the hedge plant. Sometimes the sides are clipped perpendicularly, and the top flat and broad. At other times the plants are splashed, that is, cut partly off near the ground, and bent over and trained in a sloping direction; and at other times the tops are bent down and trained in a horizontal direction. This last mode we have practised with the honey locust, and it would serve well for the elm or white birch. The plants of the beech are trained alternately to the right and left, so as to form a close lattice work, and tied together where they cross, and where they ultimately become united and grow together. But the mode of training generally recommended and practised, particularly with the thorn, is to train them with a broad base, tapering to a point at top. To do this the clipping is commenced when the plants are small, and repeated every season, leaving a couple of inches of the new growth upon each side, and cutting off no more of the main stem, until the hedge has attained a proper heighth, than is necessary to give strength and firmness to the fence. Managed in this way, when the hedge has attained the heighth of five feet, the base will be from three to four feet broad, with a gradual taper, on each side, to the crown. The clipping is generally performed in June, when the new growth is tender; and the operation is best performed with a bill hook, a figure and description of which were given in vol. ii, page 178, of the Cultivator. The young hedge must be either protected from cattle by a dead fence, or cattle must be kept from the enclosure when the plants are in leaf, and the branches tender.

When a hedge becomes defective, either from stunted growth, or neglect in attending to it, it should be all cut down to within a few inches of the ground, in the fall or spring, and its formation in this way began anew. Gaps, occasioned by the death of plants, may be repaired by plashing, that is, bending into it the plants on the side, and these, or branches, may be layered in the space so as to take root.

One of the most successful cultivators of live fence in the union, we believe is Caleb Kirk, of the state of Delaware. He cultivates the Maryland or New-Castle thorn, and practices plashing. By the bye, the seeds of this thorn may be obtained in New-Castle, Del. at about a dollar a bushel, and the quicks at Wilmington and Philadelphia, at five dollars the thousand.

But of Caleb Kirk. He wrote several valuable numbers on the economy and mode of rearing live fences, twenty-seven years ago, which were published in the American Farmer. From these numbers we collate the following opinions of Mr. K.—That the thorn is the best plant for a live fence;—that the New-Castle, with a thick green serrated or indented leaf, is the strongest, and that the Virginia parsley-leaved is the best, giving the most sprouts when cut in or plashed;—that a walnut or cedar tree growing in the vicinity of a hedge, is sure to cause decline, and ultimate death in the part near to it;—that a hedge should have full benefit of sun and air;—that a hedge requires but three feet in breadth, and should be kept down to five or six feet in heighth;—that the haws, or seed, should be separated from the shell, as practised by Mr. Main, and that if they are then suffered to dry, early germination may afterwards be induced by soaking them in warm water a few hours, and then exposing them to frost, before they are put into the ground. Mr. Kirk experimented considerably, before he settled his mind as to the best plan. We will hereafter give his remarks on this subject entire, together with his drawings of his finished hedge, and a detailed estimate of its fair cost.

HEDGE BILL HOOK.—Fig. 49.

Referred to in Mr. Chiswell's communication in our last publication.

DOMESTIC FOWLS.

The raising of Poultry, although, superficially viewed, of comparative insignificance, is a branch of rural economy which may be made to contribute largely to the economy and comfort of a family, and not a little to the profits of the farm. Chickens and eggs—ducks, geese and turkies—may be classed among the innocent luxuries of life. They also always command a ready market, and a liberal price, in our cities and towns, to which may they be transported a great distance, at trifling expense, as their carriage is comparatively light. Eggs are now taken to our cities from a distance of one or two hundred miles, and poultry still further. Individuals who have entered into the business systematically, for the purpose of supplying the market, have found it a source of substantial profit, particularly when located near large towns or navigable streams. The outlay is trifling—a little land and a cheap structure for a poultry-house. The stock costs but little, and the attendance no great, as it can be principally given by the young or non-producing members of the family. To the farmer the cost is hardly any thing, but the extra food which is sometimes required during the winter months. Poultry will live upon what they can pick up of the offal of the garden and farm, at other seasons; and if they have access to a well stocked barn and cattle yard, they will even get along in winter; but with these means they will seldom become fat. Grain, roots, fruit, &c. are required to make poultry fat, as much as they are to make other animals so;—the economy of the business lies in procuring cheap nutritious food, and in feeding it out judiciously, and in providing proper shelter.

The commerce in eggs, in Great Britain, is very great. Besides those produced in Great Britain, the annual importations from France amount to 55,000,000, from Germany and the Netherlands to 17,000,000 more, while the importations of eggs from Ireland are stated to average 500*l.* (about $2,400) per day through the year. At the average price of ten cents a dozen, the importations from the continent amount to $600,000 a year. The average price in our cities and towns may be stated at fifteen to eighteen cents per dozen, and the amount annually paid by consumers, must exceed half a million of dollars per annum. At least an equal amount is consumed by those who raise the poultry; so that a million of dollars per annum is a low estimate for the value of the eggs annually consumed in our country. This gives an average of about six eggs to each individual of our population. So much for the consumption of eggs. As to the product of hens, and expense of keep, we will cite a case, which, although an extraordinary one, and above a fair average, will nevertheless serve to give some idea of the profits which may be made in the business. We quote from Mr. Mount. He received three pullets of the Poland breed, or top-knots, on the first of December, 1835, which had been hatched in June previous, and they commenced laying on the 15th December. The number of eggs which they laid between the first of December, 1835, and first December, 1836, was 524, or 174 and 175 each, and only one of them showed a desire to set. During the twelve months they consumed three bushels of barley, seventeen pounds of rice, and a small quantity of barley meal and peas, the cost of which, in England, amounted to 16*s.* 10*d.*=$3.-71. The number of eggs being 524, there were thirty-one eggs produced for each shilling (24 cents) expended, assuming the weight of each egg to

be one and one-fourth ounces, there would be forty-one pounds of food of the most nutritious kind, which it is possible to obtain at a cost of less than twelve and a half cents per pound, and which may be estimated at eighteen cents per pound. At the latter estimate, the profit on the eggs of each fowl, above its keep, would be $1.89. The barley fed to these fowls cost 4*s.* 9*d.*=to about ninety cents the bushel. Mowbray says the eggs of well fed hens will weigh from one and three-fourths ounces to three ounces each. Buffon says a hen well fed and attended, will produce upwards of 150 eggs in a year, besides two broods of chickens. The average of well fed fowls may be stated at ten dozen or one hundred and twenty.

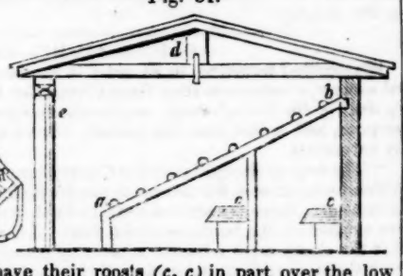
But eggs are not the only source of profit to the poultry yard. Each hen may be presumed to raise a dozen chickens in a season. The market price of these may be stated to average twelve and a half cents per pound. The weight, and consequent value, will depend on the mode in which they are fattened. They ordinarily weigh two, and may be made to weigh six pounds. The quantity consumed is very great. They are brought to our towns in great quantities by vessels, steam-boats and wagons, during all the autumn and winter months, and often sold at five to ten shillings a pair. The price in the London market has been as high as $4 a pair. The receipts for eggs and pullets, of farmers and others who raise gallinaceous fowls, in the United States, constitute so large an item, in the aggregate of farm profits, as to warrant us in devoting a column or two of the Cultivator to the management of the poultry yard.

VARIETIES.—The varieties most in esteem are the common dung-hill fowls,—game—Dorking—Poland—Bantam—Chittagong, &c. The first require no description. The plumage of the *Game* breed is particularly rich; their size somewhat below the common; their form and symmetry perfect; their flesh white, and superior to that of other breeds for richness and delicacy of flavor; but there is a great difficulty in raising the chickens, from their natural pugnacity of disposition, which shows itself at the earliest possible period. The *Dorking* fowl (the name from a town in England) is the largest variety of the species. It is handsome; legs short, with two claws on each foot; eggs large and lay abundantly; color of the flesh inclining to yellowish or ivory. *Poland fowl*, a shining black, with a white tuft of feathers on the head of both cock and hen; their form plump and deep, legs short with five claws; lay abundantly; are less inclined to set than any other breed; fatten quickly, and are more juicy and rich than the Dorking. One of the most useful varieties. The *Bantam*, is a small breed, valued chiefly for its grotesque figure and delicate flesh. The *Chittagong*, or Malay hen, is the largest variety of the species, color striated yellow and dark brown, long necked, serpent headed and high upon the leg; flesh dark and coarse.

Yard and enclosures.—Upon farms the poultry yard may be small, as the poultry should generally be allowed to range over the straw yards and most parts of the premises, to pick up what cannot be got at by swine. The situation should be dry, and have a southern exposure. It should be supplied with some effete lime, and ashes or dry earth, in which the hens may exercise the propensity of rolling or bathing. This cleans them from vermin and impurities, promotes cuticular excretion, and materially assists in promoting health. The yard should connect with a poultry house, which, where there is not already an out-building adapted to this purpose, may be constructed so as to accommodate all kinds of domestic fowls, or dunghill fowls alone. When the intention is to raise poultry on a large scale, and of different kinds, "a space thirty by fifty feet may be made choice of for the buildings and yards; the building may be ranged along the north side, and the three other sides enclosed with a trellis or slatted, or wire fence, from six to eight feet in height, and subdivided with similar fences, according to the number of apartments. The hen house (*a*, fig. 50)

Fig. 50.

Fig. 51.



and turkey house (*b*) may have their roosts (*c*, *c*) in part over the low houses for ducks (*d*) and geese, (*f*, *g*, *h*) and besides these there may be other apartments for hatching, or for newly hatched broods, for fattening, to serve as an hospital, or for retaining, boiling, and otherwise preparing food, killing poultry and other purposes. A flue may pass through the whole for moist or very severe weather; and the windows ought to have outward shutters, both for excluding excessive heat and excessive cold. In every apartment there ought to be a window opposite to the door, in order to create a thorough draft, when both are opened, and also a valve in the roof, to admit the escape of the hottest and lightest air. Every door ought to have a small opening at the bottom, for the admission of the fowls when the door is shut. The elevation should be a simple style, and there may be a pigeonry over the centre building. The roost is sometimes a mere floor or loft, to which the birds fly up or ascend by a ladder; at other times it is nothing more than the coupling timbers of the roof, or a series of cross battens or rods, rising in gradation from the floor to the roof. The battens should be placed at such a distance horizontally as that the birds, when roosting, may not incommode each other by their droppings. For this purpose they should be a foot apart for hens, and eighteen inches apart for turkies. The slope of the roost may be about 45°, and the lower part should lift up by hinges in order to permit a person to remove the dung. No flying is requisite in case of such a roost, as the birds ascend and descend by steps, see figure 51, in which *(a, b)* are spars for the poultry to sit on *(c, c,)* ranges of boxes for nests, *(d)* the roof, *(e)* the door, which should be nearly as high as the ceiling, for ventilation, and should have a small opening with a shutter at bottom, to permit the poultry to go in and out at pleasure. The spars on which the clawed birds are to roost, should not be round and smooth, but roundish and roughish like the branch of the tree."—*Moubray.*

Choice and treatment of breeding stock.—Two year old stock are preferred for producing and rearing chickens. Hens are in their prime at three, and decline at five. There should be one cock to four or six hens, though one to ten is allowable. Nests should be of short soft straw, otherwise the hen, on leaving her nest, will be liable to draw it out with her claws, and with it the eggs. From nine to fifteen eggs are placed under a sitting hen. If the eggs are marked with a pen and ink, any fresh ones which may be deposited may be detected and withdrawn. While moulting, or casting and renewing of feathers, which with its effects lasts from one to three months, hens do not lay; nor is poultry, during this period, deemed fit for the table. It is recommended to feed setting hens on the nest.

To preserve eggs.—Eggs become desiccated, and lose much of their nutritive property, in keeping, by the access of atmospheric air through the pores of the shell. To prevent this deterioration it has been found effectual to place the eggs in water saturated with lime and a little salt. The directions are, to take one bushel of quick lime, thirty-two ounces of salt, and eight ounces of cream tartar, and mix them in a tub of water. The liquid will be of such consistence as to cause an egg put into it to swim with its top just above the liquid. The eggs may be kept perfectly sound in this for at least two years.

The product in eggs will depend upon the quantity and quality of food, and upon the birds being kept warm and comfortable in winter. Hens, well treated, will lay most of the year, except when moulting, or setting and nursing the young brood. The French excel in promoting fecundity in the hen, particularly in winter, when eggs command the best price. They keep their fowls *warm*, and give them very stimulating food, as barley boiled and fed warm, curds, buckwheat, parsley and other herbs chopped fine, as also leeks, apples, pears, cabbages, &c. chopped fine—and oats and wheat.

Feeding and fattening for market.—Upon the manner and economy of doing this depends the profits of the business. It has been estimated that chickens may be reared and fattened at six cents a pound, where the food is all to be purchased. The sooner this food is transmuted into fowl, after the chicken has attained a marketable growth, the better. On the farm, poultry do much towards providing for themselves, and they only require extra food and attention for a short period before they are designed to be sold. For fattening, all the coarse grains may be put in requisition, as may potatoes and apples, chopped fine and given raw, or boiled. There is manifest economy in cracking the grain, and in cooking most of their food. Warm and dry shelter, in cold weather, is as favorable to the fattening process, as it is to the fecundity of the hen. The hen house and yard before described, is well adapted to fattening fowls—as they will not brook closer confinement, without pining, and require a pure air, and access to the earth. They require sandy gravel, and troughs for both water and food. Moubray thinks there is economy in feeding fowls with the best and heaviest grain, not only as it increases them faster in flesh, but nearly doubles the size and value of their eggs. There is probably nothing better, in the fattening process, than Indian meal, cooked or raw—and an alternation of this with roots might be found salutary. The farmer may, however, with propriety consult his stores, and fatten his poultry upon what he can best spare, whether of grain, fruits or vegetables; though during the autumn and early winter months, we doubt whether any food will be found more economical than apples and potatoes, blended with a due proportion of meal and grain. A writer in the American Farmer recommends cracked Indian corn, Indian meal or mush, with raw potatoes cut into small pieces not larger than a filbert, and that charcoal, broken into small pieces, be placed within their reach; and he alleges, that by this method fowls will fatten in one-half the usual time, and with much less expense. Molasses, or other saccharine substance, mixed with the food of poultry, is said greatly to facilitate the fattening process. Sussex, England, is famed for its fat fowls. The food given there is ground oats, made into gruel, mixed with hog's grease, sugar, hot liquor and milk; or ground oats, treacle and suet, sheeps' plucks, &c. With this the fowls are crammed

morning and night. They are fattened in a fortnight, often weigh seven to ten, and average five pounds. In Workingham, fowls are confined in a dark place, and crammed with paste made of barley-meal, mutton suet, treacle or coarse sugar, and milk, and they are ripe in a fortnight. The London poulterers coop up fowls, and make them fat in a fortnight, using much grease in the food. Neither of the three last modes are deemed proper, as regards the appearance, flavor or healthiness of poultry which they fatten.

We have confined our remarks to dung-hill fowls, and may hereafter extend them to other species of fowls that are raised upon the farm.

HINTS FOR THE PIGGERY.

Winter store keep.—Roots of all kinds, if boiled the better, excepting perhaps carrots, parsnips, mangold wurtzel and ruta baga, which will agree well in a raw state; cabbage, peas and beans, or other corn, the run of the barn yards and wash.—*Lawrence.* The economy of raising roots for the winter keep of pigs is very great, and the subject is particularly deserving the attention of the American farmer. An acre of land will give, if well attended, 600 bushels of mangold wurtzel, ruta baga, carrots or parsnips. This will keep ten pigs 120 days, giving to each a peck per diem; but where they receive the kitchen wash, and the otherwise waste food of the farm, half this quantity will suffice to keep store pigs in a thriving condition. The four quarts of roots may be considered equivalent to a quart of corn. Upon this calculation one acre of roots well go as far as four acres of corn, yielding 40 bushels the acre, in feeding winter pigs; and, estimating the corn at one dollar, and the roots at twenty-five cents per bushel, are worth about four times as much in market. It affords us pleasure to be able to say, that our root culture has been enlarged very considerably during the last season, and that nearly every person who has gone into the culture has been so pleased with the result, that he he resolved to extend it hereafter.

Fatting.—A hog will fatten best by himself, at any rate the fewer the better; and it is most conducive to their thriving that they have room in their styes. They must be ringed, must be dry, and enjoy that degree of warmth which will render them entirely comfortable, the demonstration of which is, that they lie upon their side and extended. When the hog lies upon his belly and contracted, it indicates a sense of cold, or some indisposition. If inaptitude to thrive be attributed to a foul, scurvy or obstructed hide, the best remedy is to extend the hog upon a form, and wetting him with lye made by boiling half a peck of wood ashes in urine, or salted water, to curry and scrub him clean; then to wash him in clean water, and wipe him with a wisp, strewing him over with ashes, and putting him into a deep straw bed. The method of pig feeding, to profit, is, to begin with inferior victuals, if any difference be proposed in that respect; to feed moderately during the first fortnight, or longer if the animals be weak and low in condition, and never throughout the whole period, to overburthen their stomachs, but rather to keep the appetite keen, and the troughs constantly empty, except at meal times, which should be three times a day. The pigs having gorged themselves, and blunted their appetite, give to each two table spoonfuls of sulphur once or twice a day, or in cases of great heat, equal parts of cream of tartar and nitre, and in a day or two they will recover.—*Lawrence.*

Winter wheat may be sown in the spring.—So says Mr. Low, professor of agriculture in the Edinburgh university. "If it is sown in spring, it is termed spring-wheat; if previous to winter, summer or winter wheat." By being sown in spring, it changes its habit with relation to the period of ripening. "The produce of wheat sown in the spring acquires the habit of ripening earlier than wheat sown in autumn. This change in the habit of ripening takes place in the case of all the cerelia, and many other cultivated plants."

FARMERS CLUBS.

In view of the facts, which must be palpable to all, that our general system of husbandry has been bad—and that it continues to be one of exhaustion to our soils—and that we CAN and OUGHT to improve it—and as a very efficient means of bringing about the desired change,—we would respectfully propose, that the farmers in agricultural districts form clubs, or associations, for mutual and general improvement;—that they become subscribers, in their associate capacity, for at least half a dozen agricultural periodicals, independent of those taken by the members individually; that the members meet monthly, or oftener, during the winter months, to read and discuss the matters of interest which these journals contain, and of their individual practice; and that no topic, foreign to agricultural improvement, be permitted to intrude upon these meetings.

The reason for taking several journals, is, that they may increase the stock of useful knowledge, or what may truly be denominated their farming capital. The writings upon agricultural improvement, and particularly the communications of practical farmers—have become so numerous, that the same articles are seldom published in more than one or two agricultural papers. The reason for taking them in their associate capacity, and exclusive of their individual subscriptions, is, that the latter should be carefully preserved, bound, and kept in the family. They will be worth more, for future reference and use, for the boys who are to become men, than they will cost; and if they are taken to the club-room they are liable o be soiled or lost.

Among other advantages which would result from the establishment of these clubs or associations, we may enumerate the following:

1. *They would improve the soil and the mind*—They would not only become a means of publishing to all, all that might be found excellent in the practice of each member, but they would advertise all that should be found new and useful in the practice of the entire agricultural community. They would serve to demonstrate errors in practice, where such existed, explain the causes, and teach the remedies. They would instruct in the principles upon which improvements *could be made*, and teach the practise by which they *had been made* by others. They would elicit new thoughts, develope new capacities, excite new emulation, and beget self-respect, and a desire to be useful, in the members themselves. Practice is as essential to improvement in the functions of the mind, as it is in those of the body in the arts of labor. The flint gives fire only when it is brought in collision with its kindred steel. So the collision of intellect, in the search after truth, most effectually developes its latent powers. Motion gives purity to water; if suffered to rest, it putrifies, and taints and poisons the atmosphere. So the mind can only exert its primary office of doing good, by being trained to wholesome exercise.

2. *They would be schools of instruction to the young*, particularly to those who are about assuming the *toga*, or garb of manhood, and who look to their seniors for examples of wisdom and prudence. The information which these meetings would furnish, would serve to expand the young mind, to stock it with seeds of usefulness, to teach it modes of useful culture, and to ensure a harvest of usefulness—to graduate its desires, and to avert its chimerical wanderings.

3. *They would improve the social and moral condition of their neighborhoods.*—Men habitually coming together, to receive or impart instruction, and to discuss matters of common interest to them all, can hardly fail to feel the benign influence of the social virtues, or to cultivate and inculcate them. And as these associations would tend to excite laudable competition and useful industry, they would diminish the measure of indolence, and of vice, its natural concomitant.

What we have mentioned, under the three preceding heads, as we observed, are but a part of the benefits which would result from agricultural associations. They already exist, under the names of lyceums, to a considerable extent, in the New-England states, and in Pennsylvania. But we doubt whether their benefits are so palpable as they would be, if, in the outset, the attention of their members was directed more particularly to practical improvement, by the reading and discussing the contents of our agricultural periodicals. Lectures on the sciences connected with agriculture are important as auxiliaries in the work of improvement; cabinets of mineralogical specimens may be collecting with a view to ultimate benefit; but the agricultural community are not yet enlightened enough upon these subjects to appreciate their value, or to listen to, or study them, with that interest, or with that profit which we hope and believe they will ere long excite and impart.

That the preceding remarks may not be imputed to mercenary considerations on our part; and to give an evidence of our desire to encourage the formation of the associations we recommend—we make this offer—to send the Cultivator, gratuitously, to every association of this kind, which shall be organized in the union, during the current year—the evidence of which organization shall be a certificate from the post-master of the neighborhood—with the addition, that at least six other agricultural journals have been subscribed and *paid for*, by the association. And we ask the liberty to recommend, that one of the six be the *Farmer's Register*, published at Petersburgh, Va. by E. Ruffin, because this is of a higher character, and perhaps of a more durable form, than any other published in the country.

OLDEN TIMES—1792.

We omitted to notice, in its order in the Memoirs of the old agricultural society, a communication from Chancellor Livingston, *on the excretory duct of the feet of sheep*, seemingly designed to subserve a beneficial purpose, and at that time but partially known to farmers, and not noticed by naturalists.

"The legs of sheep," says the Chancellor, "are furnished with a duct, which terminates in the fissure of the hoof; from which, when the animal is in health, there is secreted a white fluid, but when sickly, these ducts are stopped by the hardness of the fluid. I have in some instances found, that the sheep were relieved, merely by pressing out the hardened matter with the finger, from the orifice of the duct in each foot; perhaps it may in some cases be proper to place their feet in warm water, or to use a probe, or hard brush, for cleansing this passage."

It is now a received opinion, that the stoppage of these ducts, in the legs of sheep, by mud or dung, is a prolific cause of sickness, and that they ought to be carefully examined and opened on the first appearance of indisposition, inasmuch as the obstruction often causes inflammation.

In 1799, the annual address was delivered before the society by the late Simeon De Witt. We extract so much of this address as relates to

rotation of crops, and to improvements in our grain, fruit and cattle. The reader will find his time well employed in the perusal.

ROTATION OF CROPS.

"It is an observation universally known, that the ground on which flax has been raised, is not fit for the same use till after an interval of several years. With the physical cause of this phenomenon we are yet unacquainted, and perhaps will remain so for ever. But although the arcana of nature lie far beyond our comprehension, we may profit by attending to her operations; and we are allowed to frame theories, although demonstrations of their correspondence with realities surpass our capacities. I shall therefore venture to make a guess at the cause of the fact just mentioned

"I will suppose that there are as many distinct principles, or combinations of principles, engaged as agents in the work of vegetation, as there are species and varieties of vegetables; that these have their residence in the atmosphere, and are capable of being absorbed, changed and regenerated by the earth, especially when by the labors of the husbandman it is bared and exposed to their influence. I will next suppose, that generally an equal quantity of these are imbibed and ready to administer to the rearing of any correspondent vegetable, whose seed may be deposited in the earth. If then only one kind of seed be sown on a given quantity of ground, it will exhaust that particular principle which nature has provided for its growth. This ground will then become unqualified for the raising of a similar crop, until time be given again to the soil to absorb from the air that principle which has been thus diminished in the quantity, which the soil has a tendency to receive, and the capacity to hold; in the mean time any other vegetable will there find its appropriate principle undiminished, and ready to do its office in raising it to maturity. What has been observed of flax, is supposed to be true, in some degree at least, as to most other cultivated annuals. Besides it is further supposed, I may say it is proved, that a crop of one kind, so far from unfitting, will rather qualify the earth the better for the production of another, if the succession be conducted as experience directs.

"If this theory then be admitted to be well founded, the advantages o. rotations of crops can be sufficiently proved *a priori;* but there is no need of depending on persuasives of this kind; the experience of Europe, where necessity more eminently than in this country has become the mother of invention, has proved to the full conviction of all its practical farmers, that this is to be numbered among the best of modern improvements. A difference of climate and other circumstances does not present objections to our following them in this, that it does in other respects. I wish therefore to see my countrymen observing these rules in this particular with more exactitude."

IMPROVING OUR GRAIN, FRUIT AND CATTLE.

"That certain species of the productions of the earth may be improved as well as degenerated, experience and observation satisfactorily shew us. Wheat, rye, oats, barley, and maize, or Indian corn, are here mostly entitled to our attention. Can we improve the qualities of either of these? That we can is perhaps not an absolute certainty,—but while there is a probability let us not lose sight of it. If we reason from analogy, there is no cause of despair; and if it can be done, the value of the acquisition will be incalculable. I shall here make a remark, which if true, will be granted to be of some importance. It seems to be one of the laws of nature, that specific changes in vegetables, as well as animals, can be effected, but only by a slow and gradual process.* What at first is a mere accidental property, and not sensibly inheritable, may, by a repetition of impressions, from generation to generation, become at last confirmedly hereditary. That this is the case with regard to animals, many occurrences prove. Indeed we cannot in any other way rationally account for the varieties even of our own species, distinguished by color, size and other peculiarities, observed of nations, tribes and families. No one will pretend to say that such distinctions were brought about in a day or year: they must therefore be produced as has been asserted, by the continual and uniform action of their causes. The properties impressed on one generation being thus inherited in some degree by the next, which receiving additional and stronger impressions of the same kind from the same cause still operating, will transmit them still further with increased efficacy, till at last the effect is carried to its ultimate point.

"Such considerations will suggest to us the means of improving our varieties of grain. If they possess, like animals, the faculty of inheriting properties, of which there is little doubt, we should from year to year select the best for propagators, and from their produce again choose the best, and thus continue without intermission. By such means pursued for a length of time, it is more than probable we would accomplish the desired object; and who knows to what degree of perfection such things may be carried by unremitted application and care. The middle states of the union, of which New-York may be considered the chief, are without question not exceeded by any on the surface of the globe, as a country favorable to the raising of wheat. We have therefore nothing to apprehend from soil and climate, in opposition to our endeavors to bring it to the highest degree of perfection of which it is capable, and this being the most valuable production of the earth, we should spare no pains to improve it to the utmost possible pitch.

"Fruit, by which I mean what the word signifies, in its most common or limited sense, may be improved chiefly by making selections of the best kinds that occur, and preserving them by grafting, innoculation and other well known methods of obtaining the qualities of the parent vegetable undegenerated, if not meliorated, in its progeny. What valuable acquisitions lie within the range of possibilities, if we pay due attention to this article, may be aptly illustrated by simply pointing to simple occurrences. The Spitzenburgh apple, which may challenge the world to match it, was first discovered as an accidental production, in the neighborhood of this city; fortunately it fell into the hands of a man of taste, who made its superlative excellencies known to others, and gave perpetuity to its kind; but for this accident it most have again retreated into eternal oblivion. Its compeer, the Newtown Pippin, though not so exquisitely high flavored, yet perhaps superior in its ambrosial delicacy, is of so late an origin, that facts relative to the place and manner of its birth, are not yet obscured by the length and uncertainty of tradition. Other kinds, that sprung from American soil, and even from this state, need not shrink from a comparison with the best that Europe can offer. Among the infinite varieties of fruit of which the seed of the apple produces, how many that would enrich the choicest catalogue, must perish forever with the limbs that support them, merely for want of notice! It cannot therefore be improper to recommend to the members of this society to be observant of what nature does: she, like an indulgent mother, holds out to us her favors in every varied shape, as if intent on gratifying every eccentric whim, as well as all the innate appetites of her children, however innumerably diversified they may be; mixed with her coarser works frequently a jewel is to be found. Let us not then through mere inattention lose such invaluable prizes when thus gratuitously offered to us"

Mr. De Witt next adverts, in his address to the improvement of our stock, and the subject of live fences, and then to the utility of an experimental garden, or farm, as follows:

"The only way by which we can systematically and effectually do our business, is by establishing an experimental AGRICULTURAL GARDEN. This to us will be the same thing that a laboratory is to the chemist. He with his apparatus in his room has dissected earth, air and water, chased nature through all her intricate flights, and formerly deemed inscrutable mazes, penetrated to her secret hiding places, explored her dark recesses, unlocked her cabinets, rifled them of her richest jewels, and filled the treasury of science. What would he, or could he have done, if his dependance for information had been altogether, or chiefly, on the labors of others? It is to be presumed that a cloud of darkness would yet enshroud that most useful and delightful of sciences. In the same manner an agricultural garden, properly conducted, might be made a little representative, a miniature of the world, and furnish in a short space of time, more facts relative to the history, nature, disposition, constitution, laws, government and general economy of the republic of vegetables, than could by any practicable means be obtained from all America in a large portion of a century. Here exotics might be collected and naturalized, our wild indigenous plants tamed, and their useful qualities investigated, every mode of culture tried, and the best accurately ascertained,—experiments made of whatever promises fair in theory, or may lead to future discoveries, and proofs of all these exhibited to the eye, so that no one should have occasion to risk any thing by venturing on doubtful projects."

How much weight would be added to these considerations of utility, by combining with these experiments, *a school of practical instruction in the business of husbandry*, and enlarging the garden to a good sized farm? The practice of our farmers differ fifty to one hundred per cent on the score of profits. A school of practical instruction, connected with the experiments and with the science, could not fail to introduce the best models, and greatly to advance agricultural improvement.

The address closes with the following appeal in behalf of the society, and the great objects which it sought to promote:

"While millions heaped upon millions are expended to protect the interests of the small proportion of Americans who have chosen navigation as a trade, certainly a little bestowed, or even thrown away, with a good intent, for the promotion of agriculture, cannot be deemed a misapplication of money; so far from being considered a partial bounty, it would go some way to obviate the too justly grounded imputation, of an over strained bias in favor of commerce.

"And what other institution can there be conceived more deserving the patronage of a legislature than this? Has it any thing for its object that does not directly aim at the happiness of mankind? The lessening of labor, that first curse pronounced on man after the loss of his innocence, is its principal view. It aspires to the procuring of every enjoyment which the earth presented in the golden age, as sung by poets in strains the most enthusiastic and sublime. * * While passions like demons tear the breast of the politician, gnaw like vultures on his vitals, spread a gloom

* This has been satisfactorily demonstrated by Bakewell, Collins, Coke and others in cattle, by Van Mons in fruits, by Baden in maize or corn, &c. while Knight and others have effected a more speedy, and equally certain mode of change in fruits and vegetables, by artificial crosses of known varieties. Many of our garden productions have been thus artificially improved.—*Cond. Cu't.*

over his perspectives, and embitter his days, the heart of the philanthropist expands with a seraphic joy, bounds with godlike palpitations, and feels emotions of exstacy ineffably exquisite, as his eye roves over fields where the golden harvest luxuriantly waves to the wind; where every shrub and plant is loaded with dainties, where every tree bends under its fruit, and all things seem to invite us to partake of their bounties and be happy. If then these things are pure, uncontaminated fountains, whence human happiness flows, surely we cannot contemplate them with a stoical indifference; but as citizens, as Christians, and as legislators, must join our endeavors to cherish and support them."

OUR CANALS.

The following abstract, of the receipts and expenditures upon our canals, during the last year, is taken from the Annual Report of the Commissioners of the Canal Fund:

ERIE AND CHAMPLAIN CANALS.

Tolls and income on the Erie and Champlain Canals, deducting expenses of collection,		$1,426,071 78
Expenditures in repairs on do.	361,714 70	
Interest on canal debt,	163,779 70	
Towards enlarging Erie Canal,	691,103 10	
Sundry expenses,	26,333 13	
		$1,243,930 63
Leaving as nett revenue,		$182,141 15

LATERAL CANALS.

	Expenditures.	*Revenues.*	*Deficiencies.*
Oswego,	76,020 47	31,163 16	44,857 31
Cayuga and Seneca,	42,366 56	15,189 04	27,177 52
Chemung,	31,552 61	3,274 55	31,278 06
Crooked Lake,	12,146 02	822 48	11,323 51
Chenango,	107,705 05	4,955 89	102,759 16
Annual cost to the state,			$217,335 59

TWO RULES FOR PLOUGHMEN.

The breadth of the furrow-slice should correspond with its thickness, and be in the proportion of three broad to two deep. This is necessary in order that the furrow may be suitably and handsomely laid. If the depth is in greater proportion, the furrow-slice will not be turned over enough, and will be apt to rest on its edge; if it is less, the furrow-slice will be turned too far; for,

The furrow-slice should not be completely turned over, and laid flat, except where it is to be sown with grass seeds, but made to rest in a sloping position against a previous one. If flat, the soil is less pulverized, less permeable, more subject to be injured by water, than if laid sloping. In this way too the greatest surface is exposed to the atmosphere, which is calculated to ameliorate and mellow the soil. A stiff clay, or a tough sward, is but little benefitted by the plough, if laid flat. It soon becomes almost as compact as it was before it was turned over. The same takes place if the soil is wet, or heavy rains follow.

TESTIMONY IN FAVOR OF ITALIAN SPRING WHEAT.

A letter from Philip Reybold, near Delaware city, Del. says—"My son and myself obtained some Italian spring wheat of Mr. J. Hathaway last winter. I sowed six bushels, which yielded me about one hundred and twenty bushels, without manure. I merely ploughed up my stock field, as we do for oats, and sowed it. In the adjoining field, which I manured, and the chance being altogether better, my winter wheat was nearly all destroyed by the fly. I intend sowing all the spring wheat I have raised next spring."

Our correspondent is the gentleman, whose remarkable large crop of corn, and the mode of culture, were published in vol. iii, p. 34, of the Cultivator, and which may be profitably re-examined by the farmer who wishes to improve in the culture of this crop. A grass ley—plenty of long manure—deep ploughing—dressed with the harrow and cultivator only—harvested by cutting at the ground—product 2,216 bushels on twenty-two acres. Mr. Reybold and his sons raise about 20,000 bushels of corn annually. [☞ We embrace this mode of advising Mr. R. that six barrels of Dutton corn have been forwarded to him, agreeable to his request.]

A LESSON FROM FLEMISH HUSBANDRY.

The Flemings house their clover hay when but partially cured, and alternate it in the mow, in layers of six or seven inches, with straw. The straw imbibes the nutritious juices of the clover, is rendered palatable and nutritious by them; consequently the clover does not heat, and the whole is converted into valuable fodder. Without being acquainted with this practice, we have twice or thrice treated our late crop of lucern in this way, after it had been partially cured in cock; and have thought it an excellent way to increase our fodder. The clover should be first freed from all extraneous moisture. It is the natural juices of thegrass that enrich the straw.

Education in Austria.—A late British traveller, Strang, has given us a high opinion of education in Austria. He says, that in Austria proper, every child *must* go to school for a certain number of years, and that if the parents are not able to defray the expense, the education is gratuitous; that numerous normal or pattern schools furnish a supply of teaches; and that Vienna alone sends out from 1,600 to 2,000 teachers annually, from her normal schools. The peasantry of the Austrian states, this traveller assures us, enjoy a superiority in worldly prosperity, and in moral advancement, consequent upon the general system of instruction, over the same class in Great Britain. There is good ground for believing, that the mass of population in many of the German states, are better instructed, particularly in whatever conduces to success in their business, and to their moral deportment, than the mass of population of the free states of America. Such things should not be. They should not be worse, but we be better off.

ANSWERS TO CORRESPODDENTS.

LIME.

C. Butler, of Plymouth, Conn. is desirous of obtaining information as to the application of lime, and what quantity should be applied to the acre. There can be no general rules laid down in this matter. In Great Britain it is common to apply from 120 to 350 bushels, and sometimes even 600 bushels are given to the acre. The smallest quantity here named would destroy fertility in America, so far as experiments have been made. In Pennsylvania, where lime is in the greatest use for agricultural purposes, from 50 to 100 bushels are applied to the acre, the lesser quantity upon poor lands. The application of ten bushels to the acre annually, as recommended by Mr. Puvis, *as long as the crops continue to derive addition benefit from its use*, would perhaps be the safest mode of proceeding, where there is a doubt of its proving beneficial. But note well, we speak of caustic, fresh burnt lime, which can only be applied with certain profit to particular soils, where there is lignious, peaty, or inert vegetable matter, which it is the office of lime to decompose and fit as food for plants. And further—quick lime soon becomes mild or carbonate of lime, by its union with carbonic acid, which it imbibes from the earth and the atmosphere—when both its qualities and its offices becomes changed—it then improves the texture of the soil, and increases its capacities of fertility. The analysis of a soil can alone enable one to determine whether mild lime, or marl, is likely to benefit it, and to what extent. Carbonate of lime may beneficially exist to the amount of two to four per cent, in the upper six inch stratum of the soil. But as our correspondent is located on a primitive formation, destitute, or nearly so, of calcareous earth, there is no doubt but mild lime, in all its forms, will constitute a profitable application.

We subjoin the general rules, in relation to the application of lime, laid down in British Husbandry, which seem to apply well to our practice.

"1. Before the application of lime, the land should be thoroughly drained and laid dry.

"2. It may be carried on when the teams are most at leisure; but summer is the best season; and it never should be laid upon the land except in dry weather.

"3. It should be laid on while in a powdery state—the drier the better—and kept as near the surface as possible, as then best adapted to mix intimately with the soil.

"4. It may be applied either quick or effete; but if in the former state, it will have more effect in cleansing the land, and a less quantity will serve the immediate purpose. It should, however, be carted upon the land as soon as possible, and spread directly before the plough, letting that follow so quickly, as that the body of the lime shall be slaked in the soil; and it must be cautiously applied to light soils.

"5. As it has a tendency to sink into the ground, and it is important to preserve it near the surface, it should be ploughed with a shallow furrow.

"6. When found, after a few years, in lumps, and much below the surface of the land, it should be ploughed up and repeatedly harrowed, so as to ensure its intermixture.

"7. Clays and strong loams require a full dose; but for sands and other light soils, a much less quantity of lime will serve—each in proportion to the strength of the lime and the land.

"8. If the land be not supplied with the same quantity of putrescent manure that is usually laid upon other soils, the crops will suffer; and if it be not then laid down to grass for a long series of years, it will be worn out and exhausted."

We add the following from Prof. Low:

"Lime may be laid on the surface of land when it is in grass, and remain there until the land is ploughed up for tillage, even though this should be several years afterwards. The lime, in this case, quickly sinks into the soil, and acting upon it, prepares it for crops when it is again tilled."

"It may be spread upon the surface even when plants are growing. This, however, is rarely to be imitated"

For more precise directions for the application of lime *in the United*

States, we refer to the back numbers of the Cultivator, particularly to Dr. Darlington's communication in vol. i, p. 59.

NEW KINDS OF TURKEYS AND GEESE.

Our respected friend, Robert Sinclair, of Claremont Nursery, near Baltimore, Md. wishes us to advertise the public, that he will sell, at $4 the pair, a few pure white turkeys and Westphalian geese.

PLOUGHING MACHINE.

Marshall Williams, of Stockbridge, Mass. has sent us a drawing and description of a ploughing machine, to be driven by steam, and containing a combination of ploughs, and asked our opinion of its probable utility This we dare not venture to give, at least till we see it on trial.

ROOT CUTTER.

We have received from D. M. Walker, Esq. of Whiting, Vt. a drawing and description of a root cutter, invented by L. P. White, of that town, but who does not intend to patent the invention. Mr. Walker states, that though but a common farmer, he has built one of these machines himself; that the iron work for it cost about six dollars; and that with two men to turn the cranks, he has cut with it a bushel of ruta baga in one minute, into pieces half an inch thick and one and a half inch wide. We may hereafter publish the communication entire. In the mean time we will state, that the machine consists of a cylinder of hard wood, twenty-two inches long and nineteen inches in diameter, into the periphery of which are inserted four knives, of eleven inches, at proper angles to slice the roots as the cylinder revolves. The cylinder is perforated with mortices where the knives are inserted, so as to permit the sliced roots to pass to its centre, and out at one end. On the upper sides of the mortices are inserted small knives, with blades three-fourths of an inch long, to reduce the slices as they are separated by the large knives. The machine, we suppose, might be afforded for ten to twelve dollars. The drawing and description are at this office, at the service of any mechanic who may wish to construct a machine. A good machine for slicing roots is much wanted, and would find a ready sale at a fair price.

THE DAISY—COMPOST.

G. W. Allen, of Hunterdon, N. J. inquires of us, how to get rid of the white daisy—and how to convert his swamp muck into compost. The daisy is got rid of most readily by alternate husbandry and good tillage. Mr. A. will find his other inquiry answered in the last and present numbers of the Cultivator. A compost of swamp earth and lime, or yard manure, properly prepared, will benefit corn. Spread and harrow it in before planting.

CORRESPONDENCE.

GREAT CROP OF CORN.

Laurens, Dec. 1, 1837.

JUDGE BUEL,—Dear Sir,—I send you a statement of the expense and product of an acre of Indian corn, raised by me, together with the mode of its cultivation. The corn was the little eight rowed yellow variety.

Soil and culture.—The soil is a warm sandy loam. It was ploughed deep in the autumn of 1836. About the first of May, I carried on, and spread all over the ground, about thirty loads of stable and barn yard unfermented manure, then rolled and harrowed the ground well, being careful not to disturb the sod, which was timothy, and mown the summer preceding; and on the 9th and 10th May planted the same, two and a half feet between the rows, and fifteen inches between the hills. It was dressed with ashes when it made its appearance above ground. On the 10th June commenced weeding and thinning, leaving from two to four of the best spears in each hill, the whole averaging about three spears in a hill. After this I ashed it again, using in all about ten bushels of good unleached house ashes. On the 10th of July commenced hoeing, and at the same time took off all the succors—put no more earth about the hills than we took from them, but carefully cleaned out all the weeds from the hills. The seed was prepared by simply wetting it with warm water, and rolling it in plaster.

Harvesting.—The corn was cut up the 18th September, at the ground, and shocked in small shocks; and on the 9th of October it was housed and husked, and subsequently threshed and measured.

Product.—Ninety-nine bushels of first rate corn, without even a nubbin of soft or poor grain, owing to the fact, probably, that there was no suckers on which to grow them.

EXPENSES.

Ploughing one day and board,	$2 00
Rolling and harrowing one day,	2 00
Seed and plaster,	1 25
Planting two days, at 75 cents,	1 50
Five days hoeing and board,	3 75
Horse and hand with cultivator two days,	2 00
Cutting up and shocking two days, 75 cents,	1 50
Husking and housing ten days, 75 cents,	7 50
Ten bushels ashes, at 25 cents,	2 50
Labor on ruta baga, (sown among the corn,)	1 50
Interest on land, at $50 per acre,	3 50
Threshing corn three days,	2 25
35 loads manure, at 25 cents, $8 75	
Carting and spreading do. 8 75	
17 50	
Deducting two-thirds for succeeding crops in rotation,	11 67
	5 83
Total charges,	$37 80

VALUE OF PRODUCE.

70 bushels seed corn, (selling price,) at $2,	$140 00
29 do. sound do. (do.) at $1.25,	36 25
4 loads stalks, at $2.50,	10 00
20 bushels ruta baga, at 25 cents,	5 00
1 load pumpkins,	1 00
	$192 25
Deduct expenses,	37 08
Nett profits,	$155 17

H. HOPKINS.

I hereby certify, that I am personally acquainted with the above named Henry Hopkins, believe him to be a person of veracity, and that the truth of his statement may be depended on A. MARK, *Jus. Peace.*

GREAT RUTA BAGA CROP.

Lenox, Madison co. Dec. 6th, 1837.

Mr. BUEL,—Sir,—I saw in your March number of the Cultivator a premium offered on several articles of agriculture; I therefore send you a statement of one acre of ruta bagas raised by me this season, hoping, if it does not prove a successful competitor, the cause of agriculture may receive an additional witness in its behalf. The soil is a rich mould of sand and clay, containing besides the vegetable decompositions, some lime, and a small portion of the oxide of iron. It is first rate wheat land. The manure was drawn in the fall and ploughed in, which I deem very essential in raising this crop. About the 15th of June the seed was sown in drills about twenty inches apart one way, and from eight to ten the other. I raised from one and three-fourths acres 1,800 bushels; the three-fourths of an acre was not as well prepared as the other. The product of the acre was as follows.

Dr.	To 30 loads manure, at 25 cents,	$7 50
	" carting and spreading the same,	7 50
	" ploughing one and a half days,	3 00
	" rolling and harrowing,	1 00
	" seed,	50
	" sowing one-half day,	50
	" Three hoeings four days each, at 7s. per day,	10 50
	" harvesting eleven days, at 6s.	8 25
	" interest on one acre, 75 dollars,	5 25
		$44 00
Cr.	By 1,120 bushels ruta baga, 1s.	$140 00
	" tops for fodder,	6 00
		$146 00
		44 00
	Balance,	$102 00

WILLARD COTTON.

State of New-York, Madison county, ss:

I, Stephen Chapman, a Justice of the Peace of the town of Lenox, in said county, do certify that I am well acquainted with Mr. Willard Cotton, whose name appears to the above; and that he is a man of truth and veracity and entitled to full credit. S. CHAPMAN,

December 15th, 1837. *Justice of the Peace.*

RUTA BAGA CROP.

J. BUEL, Esq —Sir,—I have cultivated during the past season one and one-third acres of ruta baga turnips, on half of an acre of which I measured and had five hundred and seventeen bushels of roots. It was a clover sward, which had been pastured one year; soil a sandy loam. Before ploughing I put on fifty loads of barn-yard manure; I ploughed it one week previous to planting. I put in my seed in drills two feet and a half apart; time of sowing was on the 22d June.

50 loads of manure, at 6s. per load,	$37 50
Spreading and carting, at 1s. do.	6 25
Ploughing one and one-fourth days, at 16s. per day,	2 50
Harrowing one-half day, at 16s. do.	1 00
Sowing seed one-half day, at 8s. do.	50
Weeding three times 30 days work, at 4s. do.	15 00
Going through with cultivator three times, at 12s. per day,	2 25

Pulling roots, ten days work, at 5s. per day, ... 6 25

$73 25

On the one and one-third acres I had 1,303 bushels roots.
1,303 bushels of roots, at 3s. per bushel, ... $488 63
Deduct expenses, ... 73 25

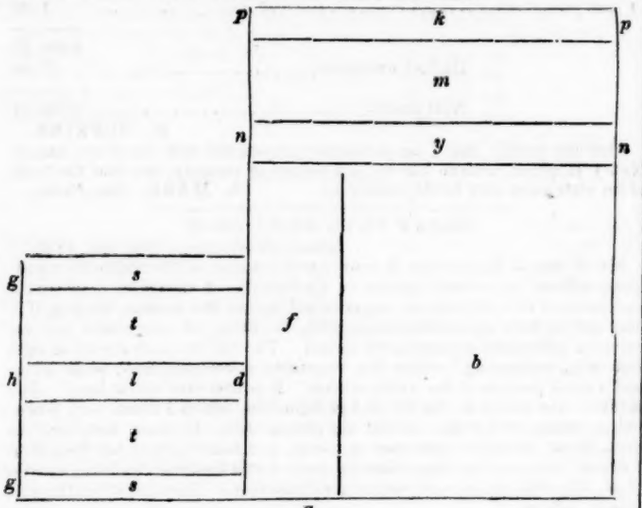
$415 38

Bethlehem. Nov. 18th, 1837. JOHN J. BULLOCK.

PLAN OF BARN AND OUT BUILDINGS.

Russia, Herkimer co. Dec. 9th, 1837.

Mr. J. BUEL, Esq.—Sir,—I hereby send you the plan of a barn for grain and cattle adapted to common farmers, for the premium offered in the first number of the fourth volume of the Cultivator.



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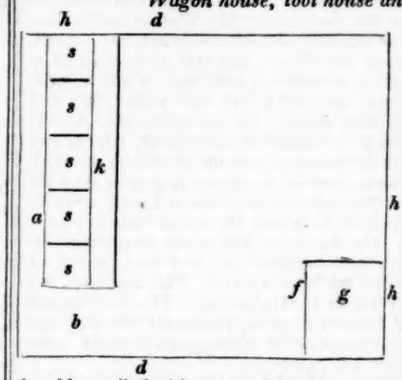
Explanation.

The barn ninety feet long by twenty-six to fifty wide; *a*, great doors twelve feet wide; *f*, floor fourteen feet by thirty-five; *b*, bay thirty-five feet by thirty-six; *l*, alley eight feet by forty; *d*, slide door from the floor to alley; *t*, *t*, stables nine feet wide; *s*, *s*, sinks three inches in depth; *g*, *g*, stable doors four feet wide; *h*, alley door; *y*, alley six feet by fifty; *n*, *n*, alley doors five feet wide; *m*, stable nine feet wide; *k*, sink three inches deep; *p*, *p*, stable doors.

There should be a good stone foundation laid in lime mortar. The main body of the barn, including the floor and bay, needs no particular description; it is thirty-five feet by fifty, and will require four bents, posts sixteen feet, on the opposite side of the floor; four bents, sixteen feet posts; the first story, six and a half feet in the clear, with a good flooring for hay; the upper beam in the end next the floor may be the great beam on one side of the floor. There should be in the centre a tie beam from plate to plate. The sills or sleepers for the stable floors should be laid across the building, each end of the sleepers should be rabbeted three inches in depth, and in length sufficient for the width of the sink. The bottom of the sink should be six inches below the top of the side sill, the sill forming one side of the sink. This will make the stables nearly seven feet high, and preserve the sills; the plank for stable floors three inches thick. For fastening cows and oxen, &c. in the stable, I would use what are called stanchials, (which are in general use with us,) which are made with sill and plate six inches square each, four feet three or four inches apart, by framing slats or pieces of plank two inches thick into them. First a piece of plank six inches wide, five feet four inches long, then a space of six inches, then a slat three inches wide, made fast in the sill, the upper end passing through the plate, there being a mortice fourteen inches long in the plate, to let the slat fall back, so that the animal's head may pass between the slats; that done, the slat is raised perpendicular, when a latch twelve inches long, three inches wide, with a notch or shoulder of one and a half inches, falls back of the slat, a projecting part of the latch resting on the top of the slats; the latch is made fast at one end of the long mortice with a pin. When you wish to release the animal raise the latch. Each cow will require a space of two feet eight or nine inches. The sill will form a side boundary of the alley. There should be four posts on each side of the alley, from the beams to the cross sills and sleepers; cattle feed on the floor of the alley. The remainder is a lean to fifteen feet wide, posts seven feet, secured to the upright part by girts and rafters, the upper end of the rafters resting on the plate of the upright; the stable may be used for cattle or horses, or both; if not used for horses, the alley may be seven feet wide if desired. The calculation is to put in hay at each end of the barn from the outside. The stables will hold from forty-six to forty-eight cows; the manure may be thrown out at the doors and through the sides of the stables, but should be removed into the field so soon as the frost is out in the spring. Stone for the sides of the stabling would be preferable to wood. The stables can be well ventilated and lighted; are very easy of access from the barn floor or out side. Coming on to the barn floor through a small door within one of the great doors by walking thirty-five feet, you can know the standing condition of every animal in the stables. If you cut your straw and hay on the barn floor, or feed roots therefrom, they are easily distributed to every part of the stabling. Soon as the hay in the bay is below the plate, it can be thrown from the mow into the alley. All the advantages over the floor can be had for grain commonly had in barns of this size.

Wagon house, tool house and horse stable.



Explanation.

This building is thirty feet by forty; *b*, stairway to go aloft; *d*, *d*, great doors 12 feet wide; *a*, rack; *s*, *s*, *s*, *s*, *s*, stalls for horses, one 7 feet wide, to feed the team in the harness; *k*, sink three inches deep; *g*, granary large as you please; *f*, door for granary; *h*, *h*, *h*, windows; the remainder for wagons, sleighs, tools, &c. There should be a stone foundation laid in lime and sand; the posts sixteen feet; the first story nine feet in the clear; a substantial ground floor; the sides ceiled with matched boards; the upper floor with matched plank; the granary plastered; the out side clapboarded; a loft for hay. A very convenient and comfortable building.

Respectfully submitted, THOMAS JOHNSON.

Lake C. H. Ia. Dec. 12th, 1837.

J. BUEL, Esq.—Dear Sir,—I consider your items of matter relating to household economy, as the most universally useful part of the paper. Thousands who possess the raw materials in abundance, lack "the art of making a good dinner out of small means." The following simple recipes are valuable, in my family. If you find room for them, I hope they will prove so in many other families.

Yours truly, SOLON ROBINSON.

BUTTERMILK BREAD.

Many of your readers are not aware of the value of buttermilk, in making biscuits. Let me tell them how to use it, I am sure they will thank me.

Take a large table spoonful of sal aratus, (not pearl ash,) pulverize or dissolve the lumps, and put it into buttermilk enough to wet up a gallon of flour. Lard or butter may be added to make the biscuit *short* if required. In summer it must be baked directly, or it will sour. In cold weather the dough may be kept. The biscuit will be very light, very sweet, very palatable, very nourishing, very wholesome, and a very considerable item of economy in the consumption of an article that is too often made food for hogs, when so valuable as food for man. Bonnyklauber will answer as a substitute for buttermilk. But the latter may be put up in jars, or a butter keg, in the fall, and kept till spring, by occasionally pouring off the water that rises on the top. No matter how sour it becomes, put in sal aratus enough and it will become as sweet as fresh yeast, and answer the same or a better purpose.

While upon the subject, let me tell those who are not informed, the difference between

SAL ARATUS AND PEARL ASH.

Pearl ash is made from the lye of wood ashes; it will make soap, and by the affinity it has for water, is very likely to dissolve and waste when exposed to the air; it gives food an unpleasant soapy taste when used in excess, with lard or other greasy matter.

Sal aratus is made from pearl ash, by a process that destroys the soapy principle, and the affinity for water, so that it will keep dry as well as chalk, &c. It is also much more valuable in cooking, on account of possessing in great excess the very principle of yeast, and produces the same effect upon bread when mixed in with acid, by which the gas that produces what the housewife calls "raising," is disengaged from the sal aratus and expands all those little cavities in a light loaf.

The process of changing the pearl ash into sal aratus is very simple. It is effected by placing the pearl ash in sacks over the mash-tubs of a grain distillery during the process of fermentation, and by the great affinity it has for the carbonic acid gas that is disengaged from the meal, it becomes not only dryer, but is so much increased in weight as to pay a profit on

the operation. I wish the whole process of distillation was of as great value to the world.

As "economy *in* the house," is the active partner of "industry *out* of the house," I will add one more to your valuable list of cooking recipes. Though perhaps it is out of character for a "Hoosier" to tell a Yankee how to make

PUMPKINS PIES.

"Grease the pie plate evenly and well, and sift fine dry corn meal, about as thick as you would make a flour crust, evenly over it, and then spread the prepared pumpkin over the *meal crust*, bake in the usual way, eat it warm, or before it is many days old." Be assured that such a pie is truly good, rich, healthy, economical. It can be prepared ready for the oven (the pumpkin being previously stewed,) in five minutes, when "I wish we had a pie for dinner," is expressed. As "nothing to shorten pie crust" is required, it can be made after the "lard tub is out," and also when the good woman "wishes we had a little flour to make pies of our sweet pumpkins," and when the good man replies "my dear we can't afford it, flour is $10 a barrel." I beg of you to try it. If you do not pronounce it valuable knowledge, cheaply acquired, I never will trouble you again.

ON FEEDING MILCH COWS WITH RUTA BAGA.

J. BUEL, Esq.—Dear Sir,—I forward you, with this, two small rolls of butter, produced from the milk from my Durham cows, which are fed half a bushel of ruta bagas each per day, with cut hay. My object is to ascertain whether you can discover any disagreeable flavor caused by the roots, for as I am in the practice of using it daily, my taste may be so far vitiated as not to notice it.

Many farmers have avoided feeding cows in milk with ruta bagas, supposing they gave to the milk a nauseous or disagreeable taste; in fact, I must confess I was among the number. My conclusions were drawn from the fact of feeding the tops in the fall, which imparted such a disagreeable flavor to the milk, that we could not use it.

On the first of November last I commenced feeding my cows with carrots, which increased the quantity of milk at least one-third, and gave to the butter a beautiful rich flavor and color. After the carrots were fed out, I commenced feeding with the ruta bagas, which was about the 10th December last, since then they have rather improved in flesh and quantity of milk—and the butter retains its beautiful rich color, which, I believe, is uncommon in winter.

From the above facts, I am well convinced, that ruta bagas may be fed to milk cows with safety; that they *will not* vitiate the flavor of the milk; and that they are as valuable for milk cows as for other stock. I would observe, however, that the roots are cut fine with a machine, and on each mess after being deposited in the mangers, a small quantity of fine salt is sprinkled on them.

Since the 10th of November I have fed my breeding sows and store hogs, exclusively on ruta bagas, with the exception of a small quantity of buckwheat bran.

The plan of feeding which I have adopted is this: in the morning we feed them raw, cut up the same as for cattle; at noon we give each full grown animal a bucket containing ten quarts of boiled ruta baga, with a small quantity of buckwheat bran, say one of bran to six of roots, mixed and made thin with water. At night we give another feed of them raw.

On this feed they have not only improved in flesh, but some of them are actually fat.

I occasionally feed them to my horses who become remarkably fond of them.

Very respectfully yours.

C. N. BEMENT.

[The butter sent us by our neighbor is a beautiful sample, wholly free from turnip flavor. We can add our own experience for sixteen years, that milk and butter are not, to our taste, injured in flavor by feeding milch cows with the *roots* of ruta baga, accompanied with the free use of salt. —*Conductor.*]

WHEAT AND WHEAT BREAD.

One of the chief appendages of a well ordered table, is a conical pile of fine wheat bread. A table, however gorgeous as to furniture, cannot be considered in complete order, without some of the precious loaf somewhere near it. Nothing has been found as a substitute, either in gust for the palate, or in properties of nutrition for the stomach. It is most easy of manufacture; will keep longest without acidity, and even when a little sour, is not considered entirely lost. It is said that a virulent spirit will grow mild, and a surly temper become agreeable, by frequent labors in rolling, folding and shaping the uneasy dough. How this may be, I cannot decide; one fact, however, is clear, *a wry* face is seldom observed, while the hands are employed in kneading the precious dust. Who, at table, after a ride of sixteen miles, on a winter morning, is not touched with a spirit of gratitude, towards his hostess, if, as he takes his second cup of Mocha, he sees approaching some dozens of smoking loaves of choice wheat bread? In quality, other bread holds no comparison, even with butter and honey. Wheat, alone, is a luxury.

But let me not disparage all other grain, from which bread is made. Corn bread is a staple article in New-England. Many have attained their manhood on it. Rye, barley, oats, buck and tea wheat possess many valuable properties, and with the aids of a keen appetite, are not to be rejected. We will not spurn what is, and must be, in daily use. Probably not more than one-fourth of all the bread, consumed in New-England, is made from wheat. Few families, located on old farms, use it all the time, and many have none the year round.

Mr. Buel, do you ask why a man writes in this manner, and for what purpose, what is thus written is offered to you for rejection or publication? I answer, my small family are freely battening on fine wheat of my own raising; a thanksgiving is enjoyed every day. That exorbitant duty I have assisted to pay to the flour dealers at the south and west for ten years past, is not likely the present year to be exacted. I have obtained one complete victory over the secret, and hitherto, successful enemy, the weavel, and hope, ere long, that starvation may effect what contrivance and force have attempted in vain.

The writer of this article is a reader of the "Cultivator," and lives in the eastern part of an eastern town, in an eastern county in Vermont. Distant place! a good ways off! The very focus between Portsmouth, Boston, Hartford, Albany and Montreal; light freight on all goods of course. So you may infer I am on the banks of the Connecticut, where the devastations of the weavel have been more entensive than in any other section.

My last experiment in 1828 proved abortive, as from six bushels sowed, nothing but straw was harvested. Field after field has been sowed at the usual period of early sowing, say April 20th, yet the greatest effort, both in preparation of seed and soil, have availed nothing; and until the past season, on the banks of the Connecticut and its larger tributaries, I have not known, for eight years past, a single instance of early sowing that proved successful.

On the 30th day of May last I sowed three bushels of clean wheat without any preparation by brine, lime, ashes or vitriol. The soil was clayish, had been well manured the preceding season, and produced a light crop of frost bitten corn. A light fog of plaster was thrown over one part of the field, and a thick one of lime over the other; yet no benefit from either was perceptible. My harvest was not so abundant as some of the western fields produced, where forty or fifty fold are gathered; I shall be satisfied with twice ten, for one; and may not get quite that. But the quality is beyond any thing harvested on my premises at any former period.

Now, Mr. Buel, this is the effect of late sowing. The soil was like other soils; so also was the seed. The same wind fanned my field fanned my neighbor's. One duty, however, the year previous, was omitted in my husbandry, which another man would have done; after the frost nipped my corn, hoeing was neglected altogether. One-half mile, both above and below my farm, and near the river, good wheat of late sowing was harvested, while two miles below, and four miles above, on similar soils, large fields of early sowing were entirely destroyed.

Since the ravages of the weavel, I have frequently come to the conclusion, that my farm must be abandoned for the wheaten soil of the west, or a hopeless conflict with that invisible enemy of the palate, be encountered. The empty barrels with Rochester, Bloomfield and Troy brands had multiplied, and almost the entire income of a small stock was required to purchase flour. How frequently has Dorothy gently tapped my arm, and with smiling countenance but irresistible eloquence said, "Albert, another barrel of flour, the bowl touched the bottom this morning." "O, Dorothy! what shall we do? Not a dollar has been received since the last barrel was purchased, and then only three remained in the box."

How different and delightful the antithesis of the foregoing request. "Dorothy, when shall we send George to mill with another grist of wheat? We have plenty, and you may use it freely, though prudently; and be sure to send a moiety of every grist to widow B. widow W. and old Mr. C.

ALBERT.

Thetford, Vt. December, 1837.

RELIEF FOR CHOAKED OR HOVEN CATTLE.

Cobleskill, December 14th, 1837.

JESSE BUEL, Esq.—Sir,—Having seen the request of your correspondent, Mr. Pliny L. Evans, in the last number of the Cultivator, that some one would communicate a remedy for bloat, or as I suppose he means what is called hoven in cattle, I hereby make known to the community, should you think it worthy of publication, the following derived from experience.

Five years since, in feeding a pair of fatting oxen, it happened that one of them became choaked by a potato, and it could not be removed without, as was supposed, endangering his life. He, in consequence, in a day or two, became so extremely swollen and distressed, that it was apprehended he would die, and to protract life, he was tapped on the left side.*

* By tapping is meant the thrusting a knife or any other sharp pointed instrument, not less than an inch and a quarter in width, between the last long, and the first short rib, on the left side, through the hide, directly into the paunch, with the back of the knife, as low as the end of the short rib, the edge being upwards, towards the back, and the point towards the centre of

In cases of choaking several remedies have been prescribed, but they are mostly difficult to be put in practice by the inexperienced, and doubtful at least in their effects. Those I have witnessed, for want of skill, and frequently by too much violence, have hastened death, rather than saved life. And in my own case, when about to kill the ox, that was considered as lost, to end his suffering, a neighbor said that a drovier, (whose name is not recollected,) had stated that a bottle of soft soap turned into the beast's throat, would occasion the obstruction to be removed, either by disgorging or pressing it downward.

It was in winter, and the soap would not run from a bottle freely without dilution. Hence a large junk bottle was obtained, and as much soap as it would hold, including warm water enough, after having been blended by a thorough shaking, to have it run freely while warm. The ox was next securely fastened in a shed. A strong halter put in his mouth, and his head drawn up by a rope passing over a beam. A man of strong hands then drew out his tongue as far as he could hold it fast, while another thrust the nose of the bottle deeply in his throat, till it was emptied of its contents. The ox's head was then let down, and in a great effort by him made, either to avoid strangulation or the offence of warm soap, the potato was thrown out. And thereafter, within an hour, the ox ate freely, and subsequently fattened well.

In 1836, I bought a pair of working oxen. One of them on two occasions, by eating, after considerable fasting, voraciously, became bloated or hoven, and upon information of the ailment, the soap was put down him as before mentioned, and the ox at each time was presently relieved.

The same ox afterwards fed safely during eight months, preformed well, and though the pair were but of middling size, were sold at the end of the above time, in perfect health, for $130.

I am your friend, NICHOLAS RUSSELL.

PERIODICALS OFTEN EFFECT THOSE WHO DO NOT READ THEM.

J. Buel,—Sir,—I am disposed to mention one fact, which may encourage you in your arduous labors, and which may also show the important and responsible situation of editors and conductors of public journals.

In the course of the last summer a neighbor of mine invited me into his orchard to witness the effects of an experiment he had made, at the suggestion of another. Last winter one of his apple trees of considerable size was peeled around near the bottom by mice. He took four or five cions from the top of the same tree in the spring, and inserted them in the bark, one end below and the other above the naked trunk, in the manner of side grafting. When I saw the tree (perhaps in August) it was growing very vigorously, the sap having passed through the inserted cions. On seeing this, I was determined to send you an account of it, that it might be spread out before the public in the Cultivator. Not long after this occurrence, I was reading one of the first volumes of this excellent work, which I had recently received, and found a description of a similar process there. I know not through how many hands this information had passed before it reached my neighbor, but it is certain he himself had not read it in the Cultivator. I mention this to show, that however extensively a useful publication may be circulated, its salutary influence may extend to hundreds, and thousands, who may never see it. On the other hand, let a publication be circulated containing articles which may be hurtful to the best interests of man, and its deleterious effects may be felt by thousands and millions, long after the publisher may have gone to give up his last account before his final Judge. O, how unspeakably important that every editor, and every one who presents any thing before the public eye, should never publish any thing but that may be useful to some one, either for time or eternity. L. H.

ON GYPSUM AS A MANURE FOR MEADOWS.

Mr. Editor,—Having, for the last few years, paid a good deal of attention to the subject of reclaiming and improving old meadows, permit me to give you the result of my experience for the benefit of the readers of the Cultivator.

I purchased four years ago about one hundred acres of land, that had been laid down to meadow many years previous. Part of it was alluvial, the rest upland adjoining. It yielded grass very unequally. In many places the lowland was light, and so of the upland; but in no part was it heavy grass, or upon the whole a profitable meadow. For the purpose of improving it, I drained such parts as required it, ploughed up portions, manured and again seeded; and other portions I manured with dung spread upon the surface, after having first scarified it with a loaded harrow. In places, however, where the surface was uneven, I previously applied the roller. My labors all tended to improve the subsequent crops, as each succeeding year the meadow gave additional yields, but still as a whole I was disappointed, for it did not fully meet my expectations. The manure was of some service, but not as much as I anticipated, and as all the product of the meadow, and likewise of the farm adjoining, was fed out upon it, the quantity made was large; it was, therefore, freely used, but not with proportionate beneficial results. The spring before the last, I was induced to apply gypsum to some of the poorer parts. The effect was decidedly beneficial, more apparent than what had followed from the application of dung, and so much so that I was induced by it to spread over almost the whole surface of the meadow the last spring; the growth of grass last year was very uniform and heavy; portions of the field that had hitherto given but an indifferent yield, now gave a heavy swath. The quantity received from it was about one-third more than it was two years previous, and of a fine quality of grass. The gypsum has the peculiar property of bringing in clover where it was never seen before, and its growth in such places as had been plaistered in the present instance was so striking, that a superficial observer would have thought the seed had been freely applied.

Farmers I think are not much in the habit of sowing plaister on their meadows. The crop they expect from them they leave solely to the bounty of Providence, without any aid or effort from them to increase it; but if my observation or experience can be of any use, I trust such as see this article, will at least be induced to try a sprinkling of plaister upon them; and I have the confidence to believe they will be amply remunerated, not only for their trouble, but a hundred fold for the expense.

A.

TO PRESERVE FENCE POSTS.

Mr. J. Buel,—Dear Sir,—If you think the following is worth a notice in your valuable paper, you will be at liberty to publish it. The subscriber believes it may be useful to many of your readers.

In the spring of 1822 I set some sawed hemlock fence posts, one-half of them I salted, boring a hole with an auger, commencing a little above the surface the of ground, boring downward and nearly through the post, then nearly filled the hole with salt, and plugged the hole to exclude the air and water. In the spring of 1830, the posts *not salted*, were all rotted off; on removing them there was not found a particle of sound wood below the surface of the ground. The salted posts are all now standing, and to appearance, may stand years longer. ABEL STILLMAN.

Poland, Herkimer co. N. Y. January 10th, 1838.

To cure scratches in horses, I have been very successful with an ointment of, say one ounce of corrosive sublimate of mercury in one pint of butter or lard, stirred while cooling. Apply moderately once in twenty-four hours to clean shanks. V. DOTY.

Carthage, Illi. December 6th, 1837.

the paunch. At the place designated, it is said the paunch adheres to the side.* There is no danger in the operation, though it be stabbing, no apparent pain is occasioned, nor visible injury follows. Through the aperture the rarified air escapes with a violence proportioned to the degree of hoven or bloat. This operation from its simplicity, the necessary instrument may always be found near at hand; and the ability of any one, with but a small share of firmness, without the aid of others to afford relief in every case where the ailment is hoven, simply. A more particular description of hoven in cattle, its cause, and the cure in the note described, may be seen in the second Volume of the Plough Boy, of March 25th, 1820, at page 339, in the communication of Marlin E. Winchell.

* The trocar, a small surgical instrument, is preferable to the knife, for this operation. The danger in this operation arises from the fact, that as the foul air and matter escapes, the paunch contracts, and the foul matter, instead of passing out through the tube inserted for its passage, finds a lodgment between the skin and stomach, where it putrifies, and destroys life.—*Cond.*

EXTRACTS.

HINTS TO STATESMEN.

On promoting the Collection and Diffusion of useful Knowledge.

It is a saying sanctioned by the authority of Bacon, that "*knowledge is power.*" Of all the various sorts of power, enumerated by that great philosopher, this seems by far the most important. What gives one man any real superiority over another, but the knowledge he possesses? What enables some individuals, to produce abundant harvests,—to carry on a prosperous commerce,—to establish successful manufactures,—to excel in mechanism, or any other useful art, but the acquisition, and judicious application of that knowledge, in which others are deficient?

That the power and prosperity of a country, depend on the diffusion of useful knowledge, can hardly be questioned; and there is probably no art, in which a variety of knowledge, is of more essential importance, than in that of agriculture. The extent of information necessary to bring it to any thing like perfection, is far greater than is generally supposed. To preserve the fertility of the soil;—to free it from superfluous moisture;—to cultivate it t the greatest advantage;—to raise its productions at the least expense;—to procure the best instruments of husbandry;—to select the stock likely to be the most profitable;—to feed them in the most judicious manner, and to bring them to the most advantageous markets;—to secure the harvest, even in the most unpropitious seasons;—to separate the grain from the straw with economy and success;—and to perform all the other operations of agriculture in the most judicious modes, require a greater extent, and variety of knowledge, than might, at first view, be judged requisite.

But though a general knowledge of agriculture may be diffused over a great country, it is found by experience, that it cannot be materially improved, unless by comparing the various practices which subsist in different parts of the same kingdom. One district has been led to pay a peculiar and successful attention to one branch of husbandry, or, by a fortunate accident, some important discovery has been made in it, while other districts excel in other particulars of equal importance. Mutual benefit is derived from the communication of such local practices. Of this, the improved modes of draining by Elkington;—the warping of land on the banks of the Humber;—the drilling of turnips and potatoes in the northern part of the island;—and the more general use of the threshing-mill, and various other articles of agricultural machinery, may be cited as examples.

The advantages that may be derived from the result of those inquiries, which have been carried on by the Board of Agriculture, in so far as regards the culture of arable land, may thus be briefly stated. The means have been explained, by which, in fertile districts, and in propitious seasons, the farmer may, on an average, confidently expect to reap, from 32 to 40 bushels of wheat; from 42 to 50 bushels of barley; from 52 to 64 bushels of oats; and from 28 to 32 bushels of beans, Winchester measure, per statute acre. As to green crops, thirty tons of turnips, three tons of clover, and from eight to ten tons of potatoes, per statute acre, may be confidently relied on. In favorable seasons, the crops are still more abundant; but even these average ones, spread over a large proportion of the united kingdom, would produce more solid wealth, than foreign commerce could ever furnish.

The various means, by which useful information could best be collected and diffused, are, 1. Forming institutions for that purpose;—2. The establishment of experimental farms;—3. The institution of agricultural professorships;—and, 4. The improvement of veterinary knowledge.

1. *Institutions for collecting and diffusing Agricultural Information.* The establishment of a Board of Agriculture in Great Britain, scanty and limited as its means have been, has produced the happiest effects; and will probably in future be considered as an era in the history of the art. Notwithstanding the limited powers of that institution, the most distant parts of the country, are already made acquainted with each other's useful practices; and the knowledge of beneficial inventions, which, from the insulated state of farmers, might for centuries have been confined to the place of their origin, have been at once rendered generally accessible. The publication of the County Reports in particular, has proved of peculiar importance, from the discussions which they have occasioned;—the spirit of emulation which they have excited;—the knowledge which they have been the means of circulating;—the truths which they have established;—and the errors which they have contributed to overturn. Animated by the example of that Board, a much greater number of agricultural societies have been constituted, than ever before existed in any other country, there being hardly an extensive district in the united kingdom, in which one, and sometimes more, of such associations have not been established. A zeal for the improvement of husbandry, has been thus cherished and kept up; and in the course of friendly and familiar conversation, useful observations are made, new facts are stated, and practical knowledge, derived from experience, is generally diffused. Much good has already been done by these societies; but still more might be effected by them, were the Board of Agriculture, placed on such an efficient footing, that it might act as a common centre, to all these numerous associations, and were for that purpose invested, with the privilege of correspondence postage free. It would thus be enabled better than it is at present, to perform those public services, which were in the contemplation of those, by whose exertions the Board was originally established.

2. *Experimental Farms.*—The art of agriculture, can never be brought to its highest degree of perfection, or established on rational and unerring principles, unless by means of experiments, accurately tried, and properly persevered in. The ardent inquirer, has too long been obliged to rely on vague opinions and assertions, which have not been warranted by sufficient authority; it is full time, therefore, by the establishment of experimental farms, under the sanction, and at the expense of government; or by enabling the Board of Agriculture, to grant adequate premiums to deserving persons, for new discoveries, to bring the art to as great perfection as possible, by ascertaining the principles on which it ought to be conducted.

It is alledged, that there are many distinguished characters, who carry on experiments for their own information and amusement, by means of which, every important fact, will in process of time be ascertained; and it cannot be doubted, that their example is of very great advantage to those, who have the means of examining the progress that is made. Their farms, however, are, more properly speaking, *pattern farms*, for the advantage *of the farmers in their immediate neighborhood*, than experimental ones, in the strict sense of the word; and they are too often, rather the partial records of successful experiments, than the faithful journals of success and of disappointment. In order to render experimental farms generally useful, they ought to be open to the inspection of the public; the account of each experiment ought to be regularly published, and every new practice, likely to improve the cultivation of any considerable part of the kingdom, ought to be examined with the utmost precision, every trial repeated for confirmation, and, if possible, made by different persons, in different places, and on different soils.

It cannot be expected, that persons of high rank, whose attention is necessarily directed to other objects, should renounce their ordinary pursuits, and devote themselves exclusively to the conducting of agricultural experiments: but if one or more experimental farms were established, under a proper system, it would ere long be discovered, what practices ought to be avoided, as well as what ought to be pursued. It is important, that the one should be made known as well as the other; yet *errors in husbandry*, are seldom communicated to the public, or known beyond the sphere of a confined neighborhood, because a farmer is in general ashamed of acknowledging his want of success. Unfortunately also, when his experiments answer, they are sometimes concealed, least others should avail themselves of the discovery. The object of an experimental farm, however, should be, to ascertain facts *and to publish them;* and as much credit would be acquired, by an intelligent conductor of an experimental farm, for his exertions in detecting errors, as in establishing facts likely to be useful.

It would surely be a highly beneficial measure, for a country, possessing such an immense revenue, to lay out any moderate sum that may be necessary, were it only 5,000*l.* per annum, for ten or twenty years, to ascertain points of such essential importance, and which might be the means of making, very great additions, to the national produce, wealth and revenue.

3. *Agricultural Professorships.**—It is not many years ago, since, at the expense of a private individual, (the late Sir William Pulteney), a professorship was established at Edinburgh, for reading lectures on the art of agriculture. The utility of such an institution is so evident, that it ought to be extended to all the other universities. The attention of young men, by such establishments, would be directed early to this most useful of all the branches of knowledge, which has now become, the general subject of conversation, wherever they go. If they inherit landed property, agriculture is the topic to which their views should be particularly directed; and as there is scarcely any profession, which will preclude them from spending some part of their time in the country; and if, after having accumulated a fortune, they become proprietors of land, their having early acquired such knowledge, would be a source of much gratification, and perhaps of advantage. For such establishments, no new grant would be necessary, or required from parliament, but merely an act, suppressing those professorships, which are at present sinecures, or of little real utility, and establishing in their room, those of agriculture.

4. *Improvement of Veterinary Knowledge.*—Some encouragement has been given, by an annual grant, to the acquisition and diffusion of veterinary knowledge; a deficiency in which, had proved so fatal to the public interest. It is not improbable, that for every pound of public money that has been in this way laid out, a thousand has been saved in our national expenditure, in the article of horses alone, employed in the cavalry and artillery. It would be desirable, indeed, that schools for veterinary knowledge, should be established in all the principal towns in the kingdom; and that the preservation of every species of our valuable stock of domestic animals, should no longer be left to ignorance or quackery, but that the practice to be adopted in the management of their disorders, should be grounded on scientific principles.—*Sir John Sinclair.*

[*From the Genesee Farmer.*]

SUCCESSFUL CULTIVATION OF ROOTS.

Mr. Tucker,—My business is to work, and not to write for the press, but as you ask communications from the farmer, I will, in my plain way, state what I have experienced in the cultivation of the potato, ruta baga, mangold wurtzel, carrot, and suger beet; manner of feeding, storing, &c. and the quantity of roots I raised this season.

The potato with me for ten years, the last excepted, has been a fair crop, but by adhering to the old method of tillage, has been more expensive than is necessary, as I find by the course I have adopted this season. I planted three acres the 29th and 30th of May; first ploughed, then manured with coarse barn-yard manure; then ploughed again and harrowed. Struck out the rows three feet apart with a one horse plough, say five inches deep; dropped the seed eighteen inches apart, turned back the furrow, and the work was done. For hoeing first and second time, the cultivator, so gaged as to fill the whole space between the rows, was passed through, followed by the hoe, giving a slight dressing, but making little or no hill, and the whole labor, after the ground was fitted, did not exceed three and a half days' work per acre. By the use of the plough the seed was planted deep; the potato never takes a downward direction. The cultivator loosened and mellowed the earth so as to allow the roots to extend, and to occupy nearly the whole row. *Get an expanding and contracting cultivator. Get one! Get one!!* The product was over 430 bushels per acre; 1,300 bushels from the three acres.

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* We would substitute agricultural schools for agricultural professorships. Agriculture will always be a subordinate and a neglected study in literary schools. We want the *practice* as well as the *study*—the *art* as well as the *science*. No young man can become qualified as a first rate farmer without learning *how* things should be done, and *why* they should be done.

The ruta baga I had cultivated to considerable extent for three years with success. This year I planted three acres in drills twenty-one inches apart 26th and 27th of June. So soon as up, I sifted house ashes and plaster, mixed in equal quantities, at the rate of fifteen bushels per acre, with wire sieves, row by row, over the whole. The effect more than answered my expectations: that little pest, the turnip bug or fly, or its ravages, was not seen at all, and the growth was most vigorous. One acre of the piece had been planted with carrots, only about one-fourth of which was standing, by reason of the insect, bad seed, or both, and ruta baga was planted in all the vacant places in the rows. They were thinned out, and hoed twice; they soon covered the ground, and the work was done. The product is over 1,000 bushels per acre; 3,000 bushels the whole, notwithstanding one acre was partially seeded with carrots, and produced 200 bushels. About one acre of the land is fine sandy loam, and the remainder is slate washed from a ravine, all highly manured.

The ruta baga I think draws more from the atmosphere, and less from the soil, than any other vegetable; for I have always found it retained the dew longer, and held it in greater quantities, than any thing else. It leaves the ground in finer condition than any other crop, and cannot be too highly valued. The carrot is excellent for fattening cattle, milch cows, &c. but is not so sure a crop, and requires much more labor in tillage. It does not always come up well, and is very liable to be destroyed by the insect.

The mangold wurtzel—of this root I planted one and a half acres on the 29th and 30th of May, (too late by ten days,) in drills twenty-one inches apart. Thinned once and hoed twice; tillage same as the ruta baga, (ashes and plaster omitted.) About two-thirds of the piece was planted with seed, which proved to be a mixed kind of all the beet family; the other one-third part was the pure seed. The crop was fine, and if all had been of the same kind, the product I think would have been one-fourth larger. But as it was, the yield may be considered a fair one—over 800 bushels per acre, and the whole 1,250 bushels. See the importance of having genuine seed, for have no doubt the product was 200 bushels less than it would have been had all the seed been pure mangold wurtzel. Reynolds and Bateham, of Rochester, have sold me genuine seeds, and I should have confidence in any they will sell as such. I am much in favor of this root for feeding—probably it is equal to any, except the sugar beet.

The sugar beet—of this I had only seed to plant six rods of ground. It seems to be well adapted to our soil and climate. The growth was much greater than any thing I have seen of the best kind. I have no doubt it will prove most valuable for feeding cattle, as well as for sugar. The product was over eighty bushels, and at the rate of about 2,100 bushels per acre, or sixty-three tons. I rate all by weight, sixty pounds to the bushel, for otherwise most of the roots could not be measured with any degree of accuracy. Here follows a statement of the produce of seven and a half and six-one hundred and sixtieth acres of what may be considered first rate corn land, and in a high state of cultivation.

	Whole product.	*Per acre.*
3 acres potatoes,.....	1,300	433⅓
3 do. ruta baga, }	3,000	1,000
carrots, }	200	800
1½ do. mangold wurtzel,..... ...	1,250	800
6-160th sugar beets, ...	80	2,100
7½ acres 6 rods.	5,830 bushels.	

Five thousand eight hundred and thirty bushels, at sixty pounds per bushel, give 346,800 pounds, or 176 1-5 tons. The potatoes thirteen tons, ruta baga thirty tons, carrots twenty-four tons, mangold wurtzel twenty-four tons, and the sugar beet at the rate of about sixty-three tons per acre. This crop last year would have brought more than $2,300. What the price may be this year I know not. It is not my purpose to sell any, but to feed all to my cattle; so I have my own market, and trust I shall turn them to good account.

I am now feeding thirty-one head, at the rate of one bushel each per day, with hay nights and mornings, in their stalls, with corn and other coarse fodder through the day. I shall add to their allowance as shall seem proper, and change from one to the other now and then. All the cattle eat greedily, and are doing well.

Barn Cellars, Storage of Roots, and Manner of Feeding.

I have two barn-cellars under the barn floors, which together hold 3,000 bushels. They have each a small door at the back end, and scuttles through the floor—are well pointed and proof against frost. By opening the door and scuttles I can dispel the foul air or gas at pleasure, for large quantities of roots stored in cellars must be ventilated, or they will heat and spoil. These cellars are filled by drawing the loaded cart on the floor, and dumping the load through the scuttles—and the cellar is filled with very little labor.

The remainder of the crop were pulled and buried directly on the ground, such as potatoes, in heaps of about thirty-three bushels, leaving a small passage at the top, in order that the gas may pass off, without which they will not keep. In these two barns I stable thrity-eight head of cattle, thirty-one of which are beef cattle, one pair of working oxen, and five milch cows—all convenient to feed from the cellars. The roots are thrown upon the barn floor—cut with large English hay knives, which can be done by a smart man at the rate of a bushel per minute, and are passed to the manger with a scoop shovel. I have heard of cutting machines for roots—never saw one, nor do I wish to. A good pair of hands, knife, and a willing mind, is all the cutting machine I want. Every farmer should have a barn-cellar; the cost is but little, and the advantage great. No one can know their value until he has one.

With good cattle, well constructed, clean, well littered stables, plenty of roots, and good hay, with card and curry-comb appplied every day, I have fine cattle and good beef. Those roots should be extensively cultivated. They are within the reach of every man who farms any land, even one acre, and can be guaged to his wants. The poor man with his one acre and one cow, can at least plant six rods, and till it when he will do nothing else. See my eighty bushels of sugar beet from like quantity.

Let all raise according to his wants and means of feeding, depending on his own market, and omit raising a portion of other produce which costs him five times as much both in labor and land. This fact I have made plain in the exhibit of the entire product of two acres of ruta baga, buried directly on the ground as I pulled them, in heaps of say thirty-three bushels, weight one ton, standing as thick as cocks of hay in common meadows of one hundred each. Twenty to one! To see is to be convinced.

The point to gain is to be able to take the greatest product with least labor from the land, and to return the whole or an equivalent back again. Keep cattle, raise roots, &c. make manure, and one important point is gained; for with manure I can raise roots, and with roots fed to cattle I can make manure, and can pay back to the land as much as I received from it. I intend in due time to communicate the result of the feeding process this winter, and offer you something on other subjects, provided this effort in your opinion is worth the use of ink and types. Do with it as you please, and I am content.

I am, sir, respectfully, your ob't serv't,
JOHN SANFORD.

Marcellus, December 26th, 1837.

CHILLBLAINS.

This affection forms one of the most troublesome of the small troubles incident to cold weather. The cause of chillblains is generally to be traced to sudden transitions from heat to cold or the reverse. Exposure to cold and wet united, and particularly immersion in snow water, are causes of chillblains. Accordingly, they do not alway occur during the continuance of intense frost, but are often more troublesome when the temperature begins to be milder by a thaw. It was observed by the celebrated Larry, in the winter campaign of the French in Russia and Poland, that but a few days before, and a few days after the battle of Wagram, the themometer was very low, from ten to fifteen degrees below zero; and yet during that time there was no mortification, nor did any other particular suffering about the hands or feet occur. But about two days after the battle a thaw took place, the themometer rose from ten to twenty degrees, and then a great number of cases of mortification of the feet occurred in the army, in some particular divisions that were much exposed, and nearly all the soldiers suffered more or less.

Chillblains occur most frequently in persons of a feeble constitution and delicate skin. Hence they are common in females and in children. Like many other evils they are more easily prevented than cured. The means of prevention are, first, such as tend to diminish the susceptibility of the surface; and second, such as protect it from vicissitudes of temperature. Among the first there is nothing better than cold water and thorough friction with a coarse towel. Among the most popular remedies for chillblains may be mentioned a strong brine, vinegar, camphorated alcohol, oil of turpentine, and other articles of this class. We have lately seen recommended the tincture of iodine as a wash, which is said to bring the parts to a healthy state. A solution of the chloride of lime, in the proportion of one part to twenty-four parts of water, has been found to answer a good purpose. Another wash which has produced excellent effects is prepared by adding one part of tincture of flies to six parts of liquid opodeldoc. With this the affected part should be frequently rubbed. When the skin has broken, and the part has assumed the character of a sore, regular medical treatment must be resorted to, as the matter then becomes too serious for quackery.—*Phil. Herald.*

TO THE FRIENDS OF AGRICULTURE OF THE STATE OF NEW-YORK.

As the period is approaching to which the last agricultural convention stands adjourned, (viz. first Thursday of February, 1838,) we beg leave to draw your special attention to the importance of the subjects that must engage the attention of that meeting, in the hope that as many of the friends of agriculture will give their attendance there as practicable.

It is unnecessary to dwell on the importance of agriculture to every interest in the state. This is so obvious to all, that it would be only wasting time to prove what every one believes and admits. All admit, too, that there is vast room for improvement; that it ought to be made, and that they feel friendly to it. But what is to us totally unaccountable is, that

what all admit and are friendly to, so few will take the trouble to promote. This great interest that clothes, feeds, supports and educates all—that matures every other, is apt to be made too subservient to the trifling pursuits of the moment—and while all little meetings, involving no voluable or permanent interests, will be well attended, one to promote agricultural improvement is commonly overlooked or neglected.

Some think it is quite enough to promote the interest of agriculture, if they give a dollar or two to the funds of a society: but, gentlemen, your money is of little consequence compared to your presence at such conventions. It is the encouragement of your personal attention; it is the interest you take in discussing subjects of improvement; it is the light that is elicited by a comparison of ideas, of those who have practiced what they have read and thought on. It is these that give interest to the subject, and push it on its march to improvement, much more than any pittance in money. At the last meeting of the convention, committees were appointed to report upon several interesting subjects, to the subsequent one in February next. As these subjects bear materially upon the improvement in the different branches of agriculture, and as they have been mostly committed to gentlemen who are willing and competent to discharge the duties assigned them, it is presumed that these reports will give much additional interest to the meeting, and that they will embrace a body of facts that will be peculiarly beneficial to the farmer. Is it not important for us to inquire what has been done the last year? What we have added to our stock of knowledge, or the comforts of our families? What have we contributed to the general welfare, and to advance the interest of our common pursuit? We must not stand still, or continue to farm as our fathers, respectable as they were, have done: because we have long seen, that they pursued an extremely exhausting system. It is for us to keep pace with the advance of the age, and throw, not only the energies of our bodies, but of the mind, into the work. This we cannot do unless we meet and compare ideas, discuss new topics, hear all that can be said on the prosecution of the different branches of agriculture, and when we return to our homes, apply these new thoughts, so gained, to the advancement of our daily pursuit.

A thousand arguments, gentlemen, might be adduced, to show, not only the need agriculture has of improvement, and the good results that will follow from our meeting—but let us ask, are they required? Is it even necessary to enumerate what is so obvious to all? Have we then no ambition to excel as farmers? No desire to promote our own or add to the prosperity of those around us? No "esprit du corps" attaches to all who are fond of their respective employments? It cannot be. We feel the assurance that as the former convention unanimously resolved to stand adjourned to the first Thursday of February, 1838, the meeting at that time will draw together a large number of the intelligent friends of agriculture.

JOHN P. BEEKMAN, A. M'INTYRE,
ANTHONY VAN BERGNN, JAMES McNAUGHTON,
JESSE BUEL, J. K. PAIGE,
TEUNIS VAN VECHTEN, LEWIS F. ALLEN,
JOHN TOWNSEND, A. WALSH.

December 28, 1838.

Young Men's Department.

NATURAL PHILOSOPHY.

II. HYDROSTATICS treats of *the pressure and equilibrium of fluids*. From the experiments which have been made in this branch in philosophy, the following important principles, among many others, have been deduced:

(1.) *That the surface of all waters which have a communication while they are at rest, will be perfectly level.*—This principle will be more clearly understood by an inspection of the following figures. If water be poured into the tube A, (fig. 52.) it will run through the horizontal tube E, and rise in the opposite tube B, to the same height at which it stands at A. It is on this principle that water is now conveyed under ground, through conduit pipes, and made to rise to the level of the fountain whence it is drawn. The city of Edinburgh, a considerable part of which is elevated above the level of the surrounding country, is supplied with water from a reservoir on the Pentland hills, several miles distant. The water is conveyed in leaden pipes down the declivity of the hill, along the interjacent plain, and up to the entrance of the castle, whence it is distributed to all parts of the city. If the point A represent the level of the reservoir, C D will represent the plain along which the water is conveyed, and B the elevation to which it rises on the Castle hill. On the same principle, and in a similar manner, the city of London is supplied with water, from the water-works at London Bridge. Had the ancients been acquainted with this simple but important principle, it would have saved them the labor and expense of rearing those stupendous works of art, the *Aqueducts*, which consisted of numerous arches of a vast size, and sometimes piled one above another.

(Fig. 52.)

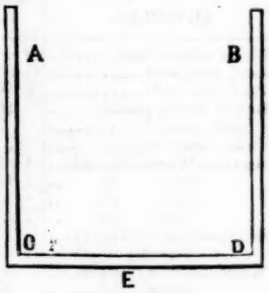
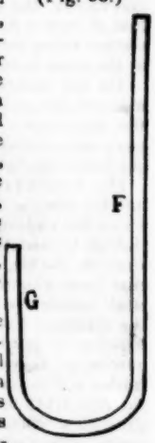


Fig. 53 represents the *syphon*, the action of which depends upon the pressure of the atmosphere. If this instrument be filled with water, or any other liquid, and the shorter leg G, plunged to the bottom of a cask, or other vessel, containing the same liquid, the water will run out at the longer leg F, till the vessel be emptied, in consequence of the atmospheric pressure upon the surface of the liquid. On this principle, water may be conveyed over rising ground to any distance, provided the perpendicular height of the syphon above the surface of the water in the fountain, does not exceed thirty-two or thirty-three feet. On the same principle are constructed the *fountain at command*, the *cup of Tantalus*, and other entertaining devices. The same principle, too, enables us to account for springs which are sometimes found on the tops of mountains, and for the phenomena of *intermitting* springs, or those which flow and stop by regular alternations.

(Fig. 53.)



(2.) *Any quantity of fluid, however small, may be made to counterpoise any quantity, however large.*—This is what has been generally termed a Hydrostatical Paradox; and from this principle it follows, that a given quantity of water may exert a force several hundred times greater or less, according to the manner in which it is employed. This force depends on the *height* of the column of water, independent of its quantity: for its *pressure* depends on its perpendicular height. By means of water conveyed through a very small perpendicular tube, of great length, a very strong hogshead has been burst to pieces, and the water scattered about with incredible force. On this principle the *hydrostatic press*, and other engines of immense power have been constructed.

(3.) *Every body which is heavier than water, or which sinks in it, displaces so much of the water as is equal to the bulk of the body immersed in the water.*—On this principle, the specific gravities, or comparative weight, of all bodies are determined. It appears to have been first ascertained by Archimedes, and, by means of it, he determined that the golden crown of the King of Syracuse had been adulterated by the workmen. From this principle we learn, among many other things, the specific gravity of the human body; and that four pounds of cork will perserve a person weighing 135 pounds from sinking, so that he may remain with his head completely above water.

Hydraulics, which has sometimes been treated as a distinct department of mechanical philosophy, may be considered as a branch of hydrostatics. It teaches us what relates to the *motion of fluids*, and how to estimate their velocity and force. On the principle of this science, all machines worked by water are constructed—as steam engines, water mills, common and forcing pumps, syphons, fountains and fire engines.

III. PNEUMATICS.—This branch of philosophy treats of the nature and properties of the atmosphere, and of their effects on solids and fluid bodies. From this science we learn, that air has *weight*, and presses on all sides, like other fluids; that the pressure of the atmosphere upon the top of a mountain, is less than on the plain beneath; that it presses upon our bodies with a weight of several thousands more at one time than at another; that air can be compressed into forty thousand times less space than it naturally occupies; that it is of an elastic or expansive nature, and that the force of its spring is equal to its weight; that its elasticity is increased by heat; that it is necessary for the production of sound, the support of flame and animal life, and the germination and growth of all kind of vegetables.

These positions are proved and illustrated by such experiments as the following:—The general *pressure* of the atmosphere is proved by such experiments as those detailed in No. 2 of the *Appendix*. The following experiment proves that air is *compressible*. If a glass tube, open at one end, and closed at the other, be plunged with the open end downwards, into a tumbler of water, the water will rise a little way in the tube; which shows, that the air which filled the tube is compressed by the water into a smaller space. The *elasticity* of air is proved by tying up a bladder, with a very small quantity of air in it, and putting it under the receiver of an air pump, when it will be seen gradually to inflate, till it becomes of its full size. A similar effect would take place, by carrying the bladder to the higher regions of the atmosphere. On the compression and elasticity of the air, depends the construction of that dangerous instrument, the air-gun.

That it is capable being rarified by heat, is proved by holding to the fire a half blown bladder, tightly tied at the neck, when it will dilate to nearly its full size; and if either a *full blown* bladder, or a thin glass bubble filled with air is held to a strong fire, it will burst. The elasticity of the air is such, that Mr. Boyle, by means of an air-pump, caused it to dilate till it occupied fourteen thousand times the space that it usually does.—That air is necessary to sound, flame, animal and vegetable life, is proved by the

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following experiments:—When the receiver of an air-pump is exhausted of its air, a cat, a mouse, or a bird, placed in it expires in a few moments, in the greatest agonies. A bell rung in the same situation produces no sound; and a lighted candle is instantly extinguished. Similar experiments prove that air is necessary for the flight of birds, the ascent of smoke and vapors, the explosion of gun-powder, and the growth of plants; and that all bodies descend equally swift in a place void of air; a guinea and a feather being found to fall to the bottom of an exhausted receiver at the at the same instant.

On the principles which this science has established, nave been constructed the air-pump, the thermometer, the barometer, the diving-bell, the hygrometer, the condenser, and various other instruments, which have contributed to the comfort of human life, and to the enlargement of our knowledge of the constitution of nature.

IV. ACOUSTICS—This science treats of the nature, the phenomena, and the laws of *sound*, and the theory of musical concord and harmony. From the experiments which have been made on this subject, we learn, that air is essential to the production of sound; that it arises from *vibrations* in the air, communicated to it by vibrations of the sounding body; that these vibrations, or aerial pulses, are propagated all around in a spherical undulatory manner; that their density decreases, as the squares of the distances from the sounding body increase; that they are propagated together in great numbers from different bodies, without disturbance or confusion, as is evident from concerts of musical instruments; that water, timber and flannel, are also good conductors of sound; that sound travels at the rate 1,142 feet in a second, or about thirteen miles in a minute; that the softest whisper flies as fast as the loudest thunder; and that the utmost limits, within which the loudest sounds, produced by artificial means, can be heard, is 180 or 200 miles; that sound striking against an obstacle, as the wall of a house, may, like light, be reflected, and produce another sound, which is called an *echo;* and that, after it has been reflected from several places, it may be collected into one point or focus, where it will be more audible than in any other place. On these principles, whispering galleries, speaking trumpets, and other acoustic instrument are constructed.

V. OPTICS.—This branch of philosophy treats or vision, light, and colors, and of the various phenomena of visible objects produced by the rays of light, reflected from mirrors, or transmitted through lenses. From this science we learn, that light flies at the rate of nearly twelve millions of miles every minute—that it moves in straight lines—that its particles may be several thousands of miles distant from each other—that every visible body, emits particles of tight from its surface, in all directioas—that the particles of light are *exceedingly small;* for a lighted candle will fill a cubical space of two miles every way with its rays, before it has lost the least sensible part of its substance; and millions of rays, from a thousand objects, will pass through a hole not larger than the point of a needle, and convey to the mind an idea, of the form, position, and color of every individual object—that the intensity, or degree of light decreases, as the square of the distance from the luminous body increases; that is, at the two yards distance from a candle, we shall have only a fourth part of the light we should have at the distance of one yard; at three yards distant, the ninth part; at four yards distant the sixteenth part, and so on—that glass *lenses* may be ground into the following forms: *plano convex, plano concave, double convex, double concave*, and *meniscus*, that is, convex on one side and coucave on the other—that specula or mirrors, may be ground into either a spherical, parabolical, or cylindrical form—that, by means of such mirrors and lenses, the rays of light may be so modified as to proceed in a *diverging, converging*, or *parallel* direction, and the image of visible objects represented in a variety of new *forms, positions*, and *magnitudes*—that every ray of white light may be separated into seven primary colors: *red, orange, yellow, green, blue, indigo*, and *violet*—that the variegated coloring which appears on the face of nature is not in the objects themselves, but in the light which falls upon them—that the *rainbow* is produced by the refraction and reflection of the solar rays in the drops of falling rain—that the rays of light are refracted, or bent out of their course, when they fall upon glass, water, or other mediums—that the light of the sun may be collected into a point or focus, and made to produce a heat more intense than that of a furnace—that the rays from visible objects, when reflected from a concave mirror, converge to a focus, and paint an image of the objects before it, and that when they pass through a convex glass, they depict an image behind it.

On these and other principles demonstrated by this science, the camera obscura, the magic lantern, the phantasmagoria, the kaliedoscope, the heliostata, the micrometer—spectacles, opera glasses, prisms, single, compound, lucernal, and solar microscopes, reflecting and refracting. Idescopes, and other optical instruments, have been constructed, by means of which the natural powers of human vision, have been wonderfully increased, and our prospects into the works of God extended far beyond what former ages could have conceived.—*Dick.*

He is the most powerful who can govern himself.—*Sen.* Self-command is often beyond the reach of even those who have had the address to obtain the command over other man, and to rule nations by their will.

WINTER EVENINGS.

Winter evenings are seasons for domestic comfort, mental application and sociality in New-England. They are delightful periods of time. Where the rude blast is heard without, and the storm beats against the snug casement, and bright fire-side reveals its substantial joys. They are not fictitious ones. The mind participates in the little comforts the body feels, and they go on in harmonious action together. These evenings should be the means of great and permanent good to the young. They should not be passed in sluggish and criminal action. They should not be frittered away in listless idleness, accumulating nothing, but squandering inestimable treasure.

We designed simply to urge upon young men the improvement of these precious periods in their existence. They are pregnant with important results, moulding the character and impressing the mind with what will sink them in mature life or elevate them to positions of influence and respectability in society. Much, very much, may be accomplished by mental application, after the labors of the field or work shops are closed. The body may be weary and the limbs tire, but the mind is still vigorous and feels nothing of lassitude or exhaustion. Apply it then every evening to a settled pursuit, to some practical study. Let not idle pretences or frivolous amusements deduct from what will insure you an honorable position in society. Young men commit an act of criminal injustice to themselves, who are content with the performance of a daily task at the bench or in the field. They should remember that the mind rather than the body, demands of them diligent care as well as assiduous cultivation.—*Northampton Courier.*

Power is maintained, more certainly by mild and prudent counsels, than by harsher measures.—*Tacit.* Conciliatory government combined with vigilence, is more likely to be a prop to power, than any system of violence or severity, which must produce irritation and discontent.

Chastity once tarnished can be restored by no art.—*Lat.* This admirable reflection should be engraven on the female mind, for when the female reputation is once sullied, no time, no repentence, can restore its lustre, or re-establish its purity.

RECEIPTS, from Nov. 25 to Jan. 20, inclusive.—Nos. under 10 not noticed.

*Augusta, Geo.	77	*Flushing, L. I.	44	N. Smithfield, Pa.	11
*Branchport, Yates,	13	Georgetown, D. C.	55	*Newark, O.	70
*Broadalbin, Mont.	50	Green, Chen.	13	New-Haven, Ky.	11
*Baltimore, Md.	125	*Gaylord's Bridge, Ct.	20	New-Bedford, Mass	44
Bethel, Vt.	15	Galena, Wisc	25	New-Milford, Ct.	17
*Boston, Mass.	87	Harrison, Va.	33	New-Alsted, N.H.	17
*Chestertown, Md.	22	Huntsville, Ala.	36	*New-Market, Va.	77
*Chaptico, C.H. Md.	13	*Hartford, Ct.	26	*Philadelphia, Pa.	258
*Culpepper, Va.	22	Hereford, Md.	11	Peekskill Westch.	66
*Charlottesville, Va.	44	*Ionia, Mich.	67	*Richmond, Va.	189
Columbus, O.	20	*Jeffersonton, Va.	40	*Richmond. Rich.	31
*Charlton, Sara.	21	*Knoxville, Ten.	22	*Rocky Hill; Ky.	33
Dunnsville, Va.	33	*Lake, C.H. Ia.	33	*Suffolk, Va.	65
Durrettsville, Va.	11	La Grange, Geo.	11	*Sandisfield, Mass.	35
*Ellsworth, O.	27	Louisville, Ky.	11	*St. Catharines, U.C.	46
*Easton, Pa.	26	Lancaster, C.H. Va.	11	*Shrewsbury, N.J.	30
*Enfield, Ct.	21	*Lansingburgh, Ren.	58	Shawangunk, Ulst.	11
*E. Bloomfield, Ont.	15	Mayfield, Va.	22	*Utica, One.	112
*Edwardsburgh, Mic.	17	*Mechanicsville, Va.	22	*Worcester, Mass.	17
*Friendship, Md.	46	*New-York,	254	Wheeler, Steu.	11
*Five Corners, Cay.	33	Nashville, Tenn.	15		

Total number of volumes subscribed for during last two months, 1072.

* Including former payments.

PRICE CURRENT.

ARTICLES.	New-York. Jan. 21.	Boston. Jan. 19.	Philadel'a Jan. 18.	Baltimore. Jan. 16.
Beans white, bush.....	2 00.. 2 25	1 12..12 25	1 ..1 12	1 25..1 50
Beef, best, cwt.....	11 00..13 50	5 75.. 7 00	7 50..9	6 00..7 25
Pork, per cwt.....	8 00..10 00	7 00.. 9 00	7 50..	7 00..
Butter, fresh, pound, ...	16.. 20	20.. 25	12.. 13	20.. 25
Cheese, pound, ...	7.. 10	8.. 9	9.. 10	9.. 10
Flour, best, bbl.....	8 75.. 8 25	8 87.. 9 00	8 75..	11 ..12
GRAIN—Wheat, bushel, ..	1 62.. 1 75	....	1 60..1 70	1 90..2 00
Rye, do. ..	1 12..	1 25.. 1 30	1 00..1 12	90.. 95
Oats, do. ..	50.. 53	52.. 55	50.. 53	37.. 38
Corn, do. ..	1 12.. 1 13	94 00..98 00	1 02..1 03	75.. 78
SEEDS—Red Clover, lb...	10 11	15.. 16	10.. 11	12.. 13
Timothy, bushel,.	1 82.. 2 00	2 75.. 3 00	3 25..2 00	3 50..4 00
WOOL—Saxony, fleece, lb.	45.. 50	50.. 55	65.. 73	40.. 50
Merino, lb..... .	35.. 40	45.. 47	46.. 48	35.. 40
1-4 and com. lb...	25.. 28	33.. 38	..33 36	28.. 30
Sheep, ...	2 50.. 5 00	1 67.. 3 00		40.. 50
Cows and Calves,.....	30	23 00..42 00		35.. 40
Cotton,.....	9.. 13	....	9.. 14	11.. 12

FROM THE STEAM PRESS OF PACKARD & VAN BENTHUYSEN